Publications of the AIAA

1973 Subject and Author Indexes

AIAA Journal
Journal of Spacecraft and Rockets
Journal of Aircraft
Journal of Hydronautics
Astronautics & Aeronautics

A Publication of the American Institute of Aeronautics and Astronautics

1973

TECHNICAL EDITORS

AIAA JOURNAL

EDITOR-IN-CHIEF

GEORGE W. SUTTON
Avco Everett Research Laboratory

ASSOCIATE EDITORS

RICHARD H. BATTIN
MIT Instrumentation Laboratory (1973)
FRED E. C. CULICK
California Institute of Technology (1973)
ANTHONY DEMETRIADES
Philco-Ford Corporation (1974)
JOHN B. DICKS JR.
University of Tennessee Space Institute (1975)
EARL H. DOWELL
Princeton University (1973)
FERNANDO L. FERNANDEZ
R & D Associates (1974)
HENRY J. KELLEY
Analytical Mechanics Associates Inc. (1975)
TOM J. LOVE JR.
University of Oklahoma (1974)
H. G. McCOMB JR.
NASA Langley Research Center (1974)
STEPHEN H. MASLEN
Martin Marietta Corporation (1973)
THEODORE H. H. PIAN
Massachusetts Institute of Technology (1975)
WALTER R. WARREN
Aerospace Corporation (1974)

JOURNAL OF SPACECRAFT AND ROCKETS

EDITOR-IN-CHIEF

RALPH R. RAGAN
The Charles Stark Draper Laboratory, Inc.

ASSOCIATE EDITORS

KENN E. CLARK
Princeton University (1973)
FRANCIS W. FRENCH
W. J. Schafer Associates Inc. (1975)
PAUL F. HOLLOWAY
NASA Langley Research Center (1974)
LEONARD MEIROVITCH
Virginia Polytechnic Institute and State University (1973)
JOSEPH V. MULLIN
Proctor and Schwartz, Div. of SCM Corp. (1974)
BERNARD PAIEWONSKY
Institute for Defense Analyses (1975)

JOURNAL OF AIRCRAFT

ACTING EDITOR-IN-CHIEF

J. E. DOUGHERTY JR.
Federal Aviation Administration (1974)

ASSOCIATE EDITORS

JAMES E. DOUGHERTY JR.
Federal Aviation Administration (1974)
JOHN H. POVOLNY
NASA Lewis Research Center (1975)
SHEILA E. WIDNALL
Massachusetts Institute of Technology (1975)
E. CARSON YATES
NASA Langley Research Center (1975)

JOURNAL OF HYDRONAUTICS

EDITOR-IN-CHIEF

JOHN P. BRESLIN
Stevens Institute of Technology

ASTRONAUTICS & AERONAUTICS

EDITOR-IN-CHIEF

JOHN NEWBAUER

MANAGING EDITOR

BRUCE FRISCH

AIAA

AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS
1290 Avenue of the Americas, New York, N. Y. 10019
(212) 581-4300

1973 OFFICERS*

President
HOLT ASHLEY (1973)

Treasurer
JOHN H. SIDEBOTTOM (1974)

Vice-Presidents
Education: DANIEL B. DeBRA (1974)
Publications: GORDON L. DUGGER (1974)
Section Affairs: HARVEY M. COOK JR. (1974)
Technical Activities: STARR J. COLBY (1974)

1973 STAFF OFFICERS

Executive Secretary: JAMES J. HARFORD
Secretary and Controller: EDWARD H. SEYMOUR

1973 BOARD OF DIRECTORS*

Directors-Technical
ROBERT C. COLLINS (1973)
EUGENE S. LOVE (1974)
RENÉ H. MILLER (1975)
GEORGE E. MUELLER (1975)
WILLIAM H. PATTERSON (1973)
MAYNARD L. PENNELL (1973)

Directors-at-Large
F. A. CLEVELAND (1973)
RICHARD D. DeLAUER (1975)
ROBERT E. HAGE (1974)
GRANT L. HANSEN (1974)
EDWARD H. HEINEMANN (1973)
JOHN W. LUCAS (1975)

Directors-Regional
J. EDWARD ANDERSON (1973)
CHARLES W. DUFFY JR. (1975)
HERBERT FOX (1974)
WALTER T. OLSON (1975)
ALAN Y. POPE (1973)
JAMES A. RALPH (1974)

Director-Past President: ALLEN E. PUCKETT (1973)

*Terms expire in year indicated

1973 JOURNAL STAFF

DIRECTOR, SCIENTIFIC PUBLICATIONS
RUTH F. BRYANS

MANAGING EDITOR, SCIENTIFIC PUBLICATIONS
ANNE HUTH

PRODUCTION MANAGER
BONNIE SILVERSTEIN

ADMINISTRATIVE ASSISTANT
JEANNE GODETTE

1973 MAGAZINE STAFF

ASSOCIATE EDITOR, ASTRONAUTICS & AERONAUTICS
STANLEY BEITLER

Published by the American Institute of Aeronautics and Astronautics Inc. at 20th & Northampton Sts., Easton, Pa. 18042, U.S.A. Editorial Offices: 1290 Avenue of the Americas, New York, N. Y. 10019. Cable address: INSAERAST NEWYORK. West Coast Office: 9841 Airport Blvd., Los Angeles, Calif. 90045. Washington Office: 1625 I Street N. W., Suite 606, Washington, D. C. 20006. Price: Free for each *Journal* subscription; additional copies available from AIAA, 1290 Avenue of the Americas, New York, N. Y. 10019, $5.00 per copy (remittance must accompany order).

1973 Subject and Author Indexes of Technical Papers Published in the Journals of the AIAA and in Astronautics & Aeronautics

AIAA Journal (Vol. 11, 1973)

Issue	Pages	Issue	Pages
January	1–128	July	897–1056
February	129–256	August	1057–1216
March	257–416	September	1217–1360
April	417–576	October	1361–1456
May	577–768	November	1457–1600
June	769–896	December	1601–1792

Journal of Spacecraft and Rockets (Vol. 10, 1973)

Issue	Pages	Issue	Pages
January	1–96	July	417–480
February	97–160	August	481–544
March	161–224	September	545–624
April	225–288	October	625–688
May	289–352	November	689–752
June	353–416	December	753–824

Journal of Aircraft (Vol. 10, 1973)

Issue	Pages	Issue	Pages
January	1–64	July	385–448
February	65–128	August	449–512
March	129–192	September	513–576
April	193–256	October	577–640
May	257–320	November	641–704
June	321–384	December	705–768

Journal of Hydronautics (Vol. 7, 1973)

Issue	Pages	Issue	Pages
January	1–48	July	97–136
April	49–96	October	137–172

Astronautics & Aeronautics (Vol. 11, 1973)

(Each issue starts with page 1; month and page are given for each entry in the indexes.)

SYN, SA, TN, EN, TC, and ERR indicate Synoptic, Survey Article, Technical Note, Engineering Note, Technical Comment, and Errata, respectively. The initials of the Journal or A & A in which the paper was published are in parentheses at the end of each entry. In the Subject Index, papers are listed chronologically with Synoptics first, followed by Survey papers, regular articles, Notes, Comments, and Errata.

Table of Contents

	Page
List of Subject Index Topic Titles	2
Subject Index	4
Author Index	29

LIST OF SUBJECT INDEX TOPIC TITLES

AIRCRAFT TECHNOLOGY, CONVENTIONAL

Aircraft Aerodynamics (Including Component Aerodynamics) 4
Aircraft Cabin Environment and Life Support Systems 4
Aircraft Configuration Design 4
Aircraft Crew Training 4
Aircraft Deceleration Systems 4
Aircraft Economics (Including System Economics) 4
Aircraft Fabrication 4
Aircraft Flight Operations 4
Aircraft Fuels and Fuel Systems 5
Aircraft Gust Loading and Wind Shear 5
Aircraft Handling, Stability, and Control 5
Aircraft Landing Dynamics 5
Aircraft Navigation, Communication, and Traffic Control 5
Aircraft Noise, Aerodynamics (Including Sonic Boom) 5
Aircraft Noise, Powerplant 5
Aircraft Performance 6
Aircraft Powerplant Design and Installation 6
Aircraft Structural Design (Including Loads) 6
Aircraft Structural Materials 6
Aircraft Subsystem Design 6
Aircraft Testing (Including Component Wind Tunnel Testing) 6
Aircraft Vibration 6
Air Transportation Systems 7
General Aviation Systems 7
Ground Support Systems 7
Military Aircraft Missions 7

AIRCRAFT TECHNOLOGY, VTOL

Ground (or Water-Surface) Effect Machines 7
Rotary Wing Aerodynamics 7
VTOL Aircraft Design 7
VTOL Cabin Habitability and Design 7
VTOL Flight Operations 7
VTOL Ground Support Systems 7
VTOL Handling, Stability, and Control 7
VTOL Landing Dynamics 7
VTOL Missions and Transportation Systems 7
VTOL Powerplant Design and Installation 7
VTOL Structural Design (Including Loads) 7
VTOL Testing 7
VTOL Vibration 7

FLUID DYNAMICS

Boundary Layers and Convective Heat Transfer—Laminar 8
Boundary Layers and Convective Heat Transfer—Turbulent 8
Boundary-Layer Stability and Transition 9
Hydrodynamics 9
Jets, Wakes, and Viscid-Inviscid Flow Interactions 9
Multiphase Flows 10
Nonsteady Aerodynamics 10
Nozzle and Channel Flow 11
Plasma Dynamics and MHD 11
Radiatively Coupled Flows and Heat Transfer 12
Rarefied Flows 12
Reactive Flows 12
Shock Waves and Detonations *12
Subsonic and Transonic Flow 12
Supersonic and Hypersonic Flow 13
Viscous Nonboundary-Layer Flows 14
Wave-Motion and Sloshing 14

INTERDISCIPLINARY TOPICS

Aerospace Management 14
Aerospace Technology Utilization 14
Atmospheric, Space, and Oceanographic Sciences 14
Checkout Systems 15
Computer Technology and Computer Simulation Techniques 15
Electric Power Generation Research 15
Lasers 15
Law, History, Policy, and Sociology 15
Navigation, Control, and Guidance Theory 15
Reliability, Quality Control, and Maintainability 16
Research Facilities and Instrumentation 16
Safety 16

LAUNCH VEHICLE AND MISSILE (LV/M) TECHNOLOGY

LV/M Aerodynamic Heating 16
LV/M Aerodynamics 16
LV/M Configurational Design 16
LV/M Dynamics and Control 17
LV/M Dynamics, Uncontrolled 17
LV/M Fabrication 17
LV/M Flight Testing 17
LV/M Fuel and Propellant Systems (Including Storage and Transfer) 17
LV/M Guidance Systems (Including Command and Information Systems) 17
LV/M Gust Loading and Wind Shear 17
LV/M Mission Studies and Economics 17
LV/M Propulsion System Integration 17
LV/M Simulation 17
LV/M Structural Design (Including Loads) 17
LV/M Subsystem Design 17
LV/M System and Component Ground Testing 17
LV/M Trajectories 17
Launch Vehicle Systems (Including Ground Support) 17
Missile Systems 17
Sounding Rocket Systems 17
Tracking Systems 17

MARINE TECHNOLOGY

Marine Electric Power Systems 17
Marine Hydrodynamics, Vessel and Control Surface 17
Marine Materials, Corrosion/Erosion 18
Marine Mooring Systems and Cable Mechanics 18
Marine Propulsion System Integration 18
Marine Vessel Design (Including Loads) 18
Marine Vessel Systems, Submerged 18
Marine Vessel Systems, Surface 18
Marine Vessel Trajectories, Stability, and Control 18
Marine Vessel Vibration 18
Oceanography, Physical and Biological 18
Propulsion System Hydrodynamics 18
Sea Pollution Containment and Control 18
Undersea Acoustics 18
Undersea Communication 18
Undersea Extra-Vehicular Activity 18
Undersea Habitability and Life Support Systems 18
Undersea Medicine (Including Psychology, Pressure Effects, etc.) 18
Undersea Mining Systems 18

PROPULSION

Airbreathing Engine Testing 18
Airbreathing Propulsion, Hypersonic 18
Airbreathing Propulsion, Subsonic and Supersonic 18
Combustion in Gases 19
Combustion in Heterogeneous Media 19
Combustion Stability, Ignition, and Detonation 19
Electric and Advanced Space Propulsion 19
Fuels and Propellants, Properties of 19
Liquid Rocket Engines 19
Marine Propulsion 20
Nuclear Propulsion 20
Rocket Engine Testing 20
Solid and Hybrid Rocket Engines 20

SPACECRAFT TECHNOLOGY

Data Sensing and Presentation or Transmission Systems 20
Earth Satellite Systems, Unmanned 20
Earth-Orbital Trajectories 20
Entry Deceleration Systems and Flight Mechanics (e.g., Parachutes) 20
Entry Vehicle Dynamics and Control 20
Entry Vehicles and Landers 21
Entry Vehicle Mission Studies and Flight Mechanics 21
Entry Vehicle Testing 21
Extraterrestrial Surface Transportation 21

Extra-Vehicular Activity ... 21
Lunar and Interplanetary Spacecraft Systems, Manned ... 21
Lunar and Interplanetary Spacecraft Systems, Unmanned ... 21
Lunar and Interplanetary Trajectories ... 21
Meteoroid Protection Systems ... 21
Radiation Protection Systems ... 21
Space Crew Training ... 21
Spacecraft Attitude Dynamics and Control ... 21
Spacecraft Communication Systems ... 22
Spacecraft Configurational and Structural Design (Including Loads) ... 22
Spacecraft Electric Power Systems ... 22
Spacecraft Flight Testing ... 22
Spacecraft Ground Testing and Simulation (Including Components) ... 22
Spacecraft Habitability and Life Support Systems ... 22
Spacecraft Mission Studies and Economics ... 22
Spacecraft Navigation, Guidance, and Flight-Path Control Systems ... 22
Spacecraft Propulsion Systems Integration ... 23
Spacecraft Sterilization ... 23
Spacecraft Temperature Control Systems ... 23
Spacecraft Tracking ... 23
Space Medicine (Including Weightlessness, Radiation Effects, Psychology, etc.) ... 23
Space Station Systems, Manned ... 23

STRUCTURAL MECHANICS AND MATERIALS

Aeroelasticity and Hydroelasticity ... 23
Hypervelocity Impact ... 23
Materials, Properties of ... 23
Structural Composite Materials (Including Coatings) ... 23
Structural Design, Optimal ... 24
Structural Dynamic Analysis ... 24
Structural Stability Analysis ... 25
Structural Static Analysis ... 26
Thermal Stresses ... 26

THERMOPHYSICS AND THERMOCHEMISTRY

Atomic, Molecular, and Plasma Properties ... 26
Heat Conduction ... 27
Liquid and Solid Thermophysical Properties ... 27
Material Ablation ... 27
Radiation and Radiative Heat Transfer ... 27
Thermal Modeling and Experimental Thermal Simulation ... 27
Thermal Surface Properties ... 28
Thermochemistry and Chemical Kinetics ... 28

SUBJECT INDEX

AIRCRAFT TECHNOLOGY, CONVENTIONAL

Aircraft Aerodynamics (including Component Aerodynamics)

Shock impingement caused by boundary-layer separation ahead of blunt fins. Louis G. Kaufman II, Robert H. Korkegi, and Leo C. Morton (AIAA J, SYN) 1363
Stall-flutter analysis. Lars E. Ericsson and J. Peter Reding (JA) 5
Recent advances in aerodynamics for transport aircraft. Part I. Lloyd T. Goodmanson and Louis B. Gratzer (A/A, December) 30
Inverse method of designing two-dimensional transonic airfoil sections. Junzo Sato (AIAA J) 58
Far-field structure of aircraft wake turbulence. W. H. Mason and J. F. Marchman III (JA) 86
Fluctuating lift and moment coefficients for cascaded airfoils in a nonuniform compressible flow. Sanford Fleeter (JA) 93
Maneuver load control and relaxed static stability applied to a contemporary fighter aircraft. D. C. Anderson, R. L. Berger, and J. R. Hess Jr. (JA) 112
Analysis of the interaction of jets and airfoils in two dimensions. C. A. Shollenberger (JA) 267
Nonplanar wings in nonplanar ground effect. Joseph E. Davis and Gordon L. Harris (JA) 308
Calculation of turbulent boundary layers and wall jets over curved surfaces. F. A. Dvorak (AIAA J) 517
Aerodynamics of wake vortices. Clinton E. Brown (AIAA J) 531
An experimental investigation of a jet issuing from a wing in crossflow. W. Mikolowsky and H. McMahon (JA) 545
Lifting-surface theory for a wing oscillating in yaw and sideslip with an angle of attack. Koji Isogai and Teruo Ichikawa (AIAA J) 599
A class of airfoils designed for high lift in incompressible flow. Robert H. Liebeck (JA) 610
On the inviscid rolled-up structure of lift-generated vortices. Vernon J. Rossow (JA) 647
Exact method of designing airfoils with given velocity distribution in incompressible flow. T. Strand (JA) 651
Minimum induced drag of a hemi-circular ground effect wing. Hiroshi Mamada and Shigenori Ando (JA) 660
Discrete vortex method of two-dimensional jet flaps. Junzo Sato (AIAA J) 968
Exact solutions for lifting surfaces. Peter F. Jordan (AIAA J) 1123
Perturbation methods in atmospheric flight mechanics. Peter H. Zipfel (AIAA J) 1247
Variational approach to the lifting surface problem. S. F. Shen and . Stevens T. K. Chan (AIAA J) 1390
Conformal mapping for potential flow about airfoils with attached flap. Vernon J. Russow (JA, EN) 60
Calculation of forces on stores in the vicinity of aircraft. Hyman Serbin (JA, EN) 123
Toward simpler prediction of transonic airfoil lift, drag, and moment. Frederick O. Smetana and Donald P. Knepper (JA, EN) 124
Correlation of wing-body combination lift data. Leland M. Nicolai and Felix Sanchez (JA, EN) 126
Axisymmetrical turbulent boundary layer along a slender cylinder. Chang-yu Liu and Yau-tien Dai (JH, EN) 133
Aerodynamic characteristics of vehicles traveling in perforated tubes. Steven F. Grittner and Bruce R. Munson (AIAA, J, TN) 251
Study of slat-airfoil combinations using computer graphics. R. H. Liebeck and D. N. Smyth (JA, EN) 254
Remarks on vortex-lattice methods. Gary R. Hough (JA, EN) 314
Aerodynamic loading on high-speed ground vehicles. Peter Crimi and Ronald A. Johnson (JA, EN) 317
Vortex-lift prediction for complex wing planforms. R. G. Bradley, C. W. Smith, and I. C. Bhateley (JA, EN) 379
Estimation of aerodynamics for slender bodies alone and with lifting surfaces at α's from 0° to 90°. Leland H. Jorgensen (AIAA J, TN) 409
Application of compressibility correction to calculation of flow in inlets. James A. Albers (JA, EN) 441
Prediction of airfoil shock location in transonic flow. Victor E. Studwell and Jain-Ming Wu (JA, EN) 636
Structure of Betz vortex cores. Peter F. Jordan (JA, EN) 691
An improved nonlinear lifting-line theory. Chuan-Tau Lan (AIAA J, TN) 739
Approximate shock-free transonic solution for a symmetric profile at zero incidence. Pradip Niyogi and Reba Mitra (AIAA, J, TN) 751
Transonic flow about lifting configurations. R. W. Barnwell (AIAA J, TN) 764
Inviscid wake-airfoil interaction on multielement high lift systems. Alfred Moser and Carl A. Shollenberger (JA, EN) 765
Finite chord effects on vortex induced wing loads. L. T. Filotas (AIAA J, TN) 888
Comment on "Simplification of the wing-body problem." Alexander H. Flax (JA, TC) 640
Comment on "Lift of wing-body combination." Alexander H. Flax (AIAA J, TC) 896
——Reply by author to A. H. Flax. H. T. Yang (AIAA J, TC) 896
Simplification of the wing-body interference problem. Ralph E. Graham and Jerry L. McDowell (JA, ERR) 128
Analytical method for combining the interaction of inlet distortion and turbulence. R. L. Panton (JA, ERR) 192 .
Drift of buoyant wing-tip vortices. Robert C. Costen (JA, ERR) 320

Aircraft Cabin Environment and Life Support Systems

Determining STOL ride quality criteria—Passenger acceptance. Ira D. Jacobson and A. Robert Kuhlthau (JA) 163
Prediction of long-term heat-pipe performance from accelerated life tests. E. Baker (AIAA J, TN) 1345

Aircraft Configuration Design

High energy astronomy. Herbert Friedman (Dryden Lecture; A/A, April) 30
Design for air combat. W. B. Herbst and B. Krogull (JA) 247
Advanced technology applications to present and future transport aircraft. Richard E. Black and David G. Murphy (JA) 259
Advanced technology transport configuration. Bill Williams (JA) 323
A finite-element method for calculating aerodynamic coefficients of a subsonic airplane. Hsichun M. Hua (JA) 422
Control system design considerations for a longitudinally unstable supersonic transport. Lloyd R. Tomlinson (JA) 594
Static stability and drag studies for bodies of revolution in supersonic flow. Hans-Joachim Luckert (JSR) 703
Computer aided design-drafting (CADD)—Engineering/manufacturing tool. C. H. English (JA) 747
Calculation of forces on stores in the vicinity of aircraft. Hyman Serbin (JA, EN) 123
Toward simpler prediction of transonic airfoil lift, drag, and moment. Frederick O. Smetana and Donald P. Knepper (JA, EN) 124
Equivalence rule and transonic flow theory involving lift. H. K. Cheng and M. M. Hafez (AIAA J, TN) 1210

Aircraft Crew Training

Evaluation of the selection and training of fighter pilots. Roy K. Frick (JA) 120
Advanced fighter controls flight simulator for all-systems compatibility testing. David R. Rolston, Stephen M. Rayhawk, and Benny B. Barnes (JA) 602

Aircraft Deceleration Systems

Target-type thrust reverser noise. James R. Stone and Orlando A. Gutierrez (JA) 283
An omnidirectional gliding ribbon parachute and control system. William B. Pepper and John R. Biesterveld (JA) 678
Thrust reverser noise estimation. Martin R. Fink (JA, EN) 507
Helium bubble survey of an opening parachute flowfield. Paul C. Klimas (JA, EN) 567

Aircraft Economics (including System Economics)

Door to door short haul. Fred R. Steven (A/A, March) 32
Advanced technology applications to present and future transport aircraft. Richard E. Black and David G. Murphy (JA) 259
Hypersonic transports—Economics and environmental effects. Richard H. Petersen and Mark H. Waters (JA) 334

Aircraft Fabrication

Analysis of bonded joints in vehicular structures. Richard M. Barker and Fritz Hatt (AIAA J) 1650

Aircraft Flight Operations

Flight test studies of the formation and dissipation of trailing vortices. Howard Chevalier (JA) 14
MLS: On the beam for '76. Jack W. Edwards (A/A, March) 24
Bird control at the airport. George E. Meyer and Michael J. Boulter (A/A, December) 55
A look at Soviet ATC and Nav facilities and avionics. Siegbert B. Poritzky (A/A, September) 69
Low-altitude atmospheric turbulence around an airport. Stanley D. Cass, James R. Scoggins, and Howard L. Chevalier (JA) 157
Flight evaluation of three-dimensional area navigation for jet transport noise abatement. D. G. Denery, K. R. Bourquin, K. C. White, and F.

J. Drinkwater III (JA) 226
Flight director design for a STOL aircraft. W. R. Seitz and R. E. Goodson (JA) 491
Observations of atmospheric effects on vortex wake behavior. Ivar Tombach (JA) 641
Decoupling of a class of nonlinear systems and its application to an aircraft control problem. Sabi J. Asseo (JA) 739
Turbulence variations during the high altitude clear air turbulence (HICAT) program. David E. Waco and Edward V. Ashburn (JA, EN) 56

Aircraft Fuels and Fuel Systems

Aircraft Gust Loading and Wind Shear

Nonstationary ascent wind analysis. L. J. Howell, B. J. Kuchta, and R. E. Barnes (JSR, SYN) 755
Some aircraft flight conditions relating to LO-LOCAT. John W. McCloskey (JA) 244
Analysis of airplane response to nonstationary turbulence including wing bending flexibility. Yoshinori Fujimori and Y. K. Lin (AIAA J) 334
——Analysis of airplane response to nonstationary turbulence including wing bending flexibility II. Yoshinori Fujimori and Y. K. Lin (AIAA J, TN) 1343
Atmospheric turbulence. John C. Houbolt (AIAA J, Dryden Research Lecture) 421
Dynamic gust, landing, and taxi loads determination in the design of the L-1011. Warren A. Stauffer and Frederic M. Hoblit (JA) 459
Response of a rigid aircraft to nonstationary atmospheric turbulence. Joseph M. Verdon and Roy Steiner (AIAA J) 1086

Aircraft Handling, Stability, and Control

Stability criteria for accelerating and decelerating aircraft. E. V. Laitone and Wen-Fan Lin (JA, SYN) 129
Development of pilot-in-the-loop analysis. Duane McRuer (JA, SA) 515
Maneuver load control and relaxed static stability applied to a contemporary fighter aircraft. D. C. Anderson, R. L. Berger, and J. R. Hess Jr. (JA) 112
Some effects of bias errors in redundant flight control systems. Robert F. Stengel (JA) 150
Preliminary criteria for predicting depature characteristics/spin susceptibility of fighter-type aircraft. Robert Weissman (JA) 214
Nonplanar wings in nonplanar ground effect. Joseph E. Davis and Gordon L. Harris (JA) 308
Estimation of control surface dynamic derivatives from flight test data. B. M. Hall, M. S. Sholar, and A. P. Allred (AIAA J) 312
Synthesis of a FBW system for an F-4. R. L. Kisslinger and G. J. Vetsch (JA) 414
Flight director design for a STOL aircraft. W. R. Seitz and R. E. Goodson (JA) 491
Factors governing control in a STOL landing approach. Samuel J. Craig and Robert K. Heffley (JA) 495
Static aeroelasticity and the flying wing. Terrance A. Weisshaar and Holt Ashley (JA) 586
Control system design considerations for a longitudinally unstable supersonic transport. Lloyd R. Tomlinson (JA) 594
Advanced fighter controls flight simulator for all-systems compatibility testing. David R. Rolston, Stephen M. Rayhawk, and Benny B. Barnes (JA) 602
Active flutter control—An adaptable application to wing/store flutter. William E. Triplett, Hans-Peter F. Kappus, and Robert J. Landy (JA) 669
Decoupling of a class of nonlinear systems and its application to an aircraft control problem. Sabi J. Asseo (JA) 739
Phase lead S-plane compensation. Itzhack Y. Bar-Itzhack (AIAA J) 1521
Aerodynamic characteristics of vehicles traveling in perforated tubes. Steven F. Grittner and Bruce R. Munson (AIAA J, TN) 251
The dynamics of blade pitch control. Maurice I. Young (JA, EN) 446
Example of dynamic interference effects between two oscillating vehicles. K. J. Orlik-Rückemann and S. Iyengar (JSR, EN) 617
Longitudinal response of an aircraft due to a trailing vortex pair. A. Ramirez Jr., B. M. Rao, and A. E. Cronk (JA, EN) 638
Conditions for stability of an ablating symmetric rolling re-entry vehicle. I. Kadushin (JSR, EN) 808
Comparison of geometric and response-feedback approaches to aircraft lateral-directional decoupling. Paul R. Motyka and G. Warren Hall (JA, TC) 698
——Reply to Comment by Paul R. Motyka and G. Warren Hall. Eugene M. Cliff and Frederick H. Lutze (JA, TC) 701

Aircraft Landing Dynamics

MLS: On the beam for '76. Jack W. Edwards (A/A, March) 24
Factors governing control in a STOL landing approach. Samuel J. Craig and Robert K. Heffley (JA) 495
Vibrations of an Euler beam with a system of discrete masses, springs, and dashpots. K. S. Raghavan and V. Sundararajan (JA, EN) 190

Aircraft Navigation, Communication, and Traffic Control

MLS: On the beam for '76. Jack W. Edwards (A/A, March) 24
DAIS: A major crossroad in the development of avionic systems. Bernard List (A/A, January) 55
Cost-of-ownership design philosophy for inertial navigators. Ronald L. Ringo (A/A, June) 59
A look at Soviet ATC and Nav facilities and avionics. Siegbert B. Poritzky (A/A, September) 69
Reduction of ILS errors caused by building reflections. R. N. Ghose (JA) 167
——Reduction of ILS errors caused by building reflections. R. N. Ghose (JA, ERR) 512
An optimal control approach to terminal area air traffic control. David K. Schmidt and Robert L. Swaim (JA) 181
Flight evaluation of three-dimensional area navigation for jet transport noise abatement. D. G. Denery, K. R. Bourquin, K. C. White, and F. J. Drinkwater III (JA) 226
An interactive real time simulation for scheduling and monitoring of STOL aircraft in the terminal area. John D. McLean and Leonard Tobias (JA) 372
A simplified correlation method for distance measurement using satellites. W. D. T. Davies and S. C. Martin (JA) 525
An application of Kalman techniques to aircraft and missile radar tracking. G. T. Aldrich and W. B. Krabill (AIAA J) 932
Modeling of aircraft position errors with independent surveillance. David E. Stepner (AIAA J) 1273
Updating inertial navigation systems with VOR/DME information. J. C. Bobick and A. E. Bryson Jr. (AIAA J) 1377

Aircraft Noise, Aerodynamics (including Sonic Boom)

A quiet engine for stilling complaints. Newell D. Sanders (A/A, January) 40
NASA/GE quiet engine "A." M. J. Benzakein, S. B. Kazin, and F. Montegani (JA) 67
Flight evaluation of three-dimensional area navigation for jet transport noise abatement. D. G. Denery, K. R. Bourquin, K. C. White, and F. J. Drinkwater III (JA) 226
Vortex noise of isolated airfoils. Robert W. Paterson, Paul G. Vogt, Martin R. Fink, and C. Lee Munch (JA) 296
Estimation of possible excitation frequencies for shallow rectangular cavities. Alan J. Bilanin and Eugene E. Covert (AIAA J) 347
Geared fan engine systems—Their advantages and potential reliability. T. A. Lyon and R. D. Hillery (JA) 361
Review of current sonic boom studies. Edward J. Kane (JA) 395
Design and development of the United Aircraft Research Laboratories Acoustic Research Tunnel. Robert W. Paterson, Paul G. Vogt, and William M. Foley (JA) 427
Ballistic range investigation of sonic-boom overpressures in water. Peter F. Intrieri and Gerald N. Malcolm (AIAA J) 510
Aircraft environmental problems. V. L. Blumenthal, J. M. Streckenbach, and R. B. Tate (JA) 529
Development of sonic inlets for turbofan engines. Frank Klujber (JA) 579
Turbulent correlation measurements in a two-stream mixing layer. B. G. Jones, H. P. Planchon, and R. J. Hammersley (AIAA J) 1146
Computing meteorological effects on aircraft noise. Robert J. Thompson (AIAA J, TN) 121
Locus of a one-dimensional shock front caused by a disturbance moving on a circle. F. Meyer (AIAA J, TN) 408
Thrust reverser noise estimation. Martin R. Fink (JA, EN) 507
Flow properties fluctuations in a convergent-divergent nozzle. Tarit K. Bose (JSR, EN) 530
Equivalence rule and transonic flow theory involving lift. H. K. Cheng and M. M. Hafez (AIAA J, TN) 1210

Aircraft Noise, Powerplant

A quiet engine for stilling complaints. Newell D. Sanders (A/A, January) 40
NASA/GE quiet engine "A." M. J. Benzakein, S. B. Kazin, and F. Montegani (JA) 67
Target-type thrust reverser noise. James R. Stone and Orlando A. Gutierrez (JA) 283
Vortex noise of isolated airfoils. Robert W. Paterson, Paul G. Vogt, Martin R. Fink, and C. Lee Munch (JA) 296
Geared fan engine systems—Their advantages and potential reliability. T. A. Lyon and R. D. Hillery (JA) 361
Review of current sonic boom studies. Edward J. Kane (JA) 395
Propulsion system design for the ATT. Gerald L. Brines (JA) 487
Aircraft environmental problems. V. L. Blumenthal, J. M. Streckenbach, and R. B. Tate (JA) 529
Flyover noise testing of commercial jet airplanes. E. L. Zwieback (JA) 538
Turbulent correlation measurements in a two-stream mixing layer. B. G. Jones, H. P. Planchon, and R. J. Hammersley (AIAA J) 1146
Thrust reverser noise estimation. Martin R. Fink (JA, EN) 507
Experimental study on optimization parameters of a supersonic jet ejector

thrust augmentor. Dah Yu Cheng, Peter Wang, and Dean M. Chisel (JA, EN) 569
Comment on "Reduction of noise from supersonic jet flows." Arthur G. Kurn (AIAA J, TC) 254
——Reply by authors to A. G. Kurn. Darshan S. Dosanjh and James C. Yu (AIAA J, TC) 415

Aircraft Performance

Maneuver load control and relaxed static stability applied to a contemporary fighter aircraft. D. C. Anderson, R. L. Berger, and J. R. Hess Jr. (JA) 112
Nonplanar wings in nonplanar ground effect. Joseph E. Davis and Gordon L. Harris (JA) 308
Potential payoffs of variable geometry engines in fighter aircraft. P. Czysz, F. C. Glaser, and S. A. LaFavor (JA) 342
Minimum induced drag of a hemi-circular ground effect wing. Hiroshi Mamada and Shigenori Ando (JA) 660
Differential turns. Henry J. Kelley and Leon Lefton (AIAA J) 858
Wind shear payload support system. Philip O. Jarvinen (JA, EN) 189
Accelerating one-dimensional searches. Ivan L. Johnson Jr. and James L. Kamm (AIAA J, TN) 757
——Accelerating one-dimensional searches. Ivan L. Johnson Jr. and James L. Kamm (AIAA J, ERR) 1456
On the fuel optimality of cruise. Jason L. Speyer (JA, EN) 763

Aircraft Powerplant Design and Installation

Measurements of the boundary-layer growth in annular diffusers. Stanley J. Stevens and Peter Fry (JA) 73
Potential payoffs of variable geometry engines in fighter aircraft. P. Czysz, F. C. Glaser, and S. A. LaFavor (JA) 342
Geared fan engine systems—Their advantages and potential reliability. T. A. Lyon and R. D. Hillery (JA) 361
Propulsion system design for the ATT. Gerald L. Brines (JA) 487
Unique characteristics of exhaust-plume interference. Dave Bergman (JA, EN) 508

Aircraft Structural Design (including Loads)

Automated design optimization of supersonic airplane wing structures under dynamic constraints. R. L. Fox, H. Miura, and S. S. Rao (JA, SYN) 321
Approximate analysis of containment/deflection ring responses to engine rotor fragment impact. Richard W.-H. Wu and Emmett A. Witmer (JA) 28
Finite element structural analysis of local instability. J. S. Przemieniecki (AIAA J) 33
The next careful steps in commercial aircraft structures. Paul L. Sandoz (A/A, July) 38
Tomorrow's structural engineering. D. S. Warren (A/A, July) 48
Hail damage to typical aircraft surfaces. Robert J. Hayduk (JA) 52
Developing structures technology for the day after tomorrow. George W. Brooks (A/A, July) 56
Understanding the USAF structural integrity program. George P. Haviland and Charles Tiffany (A/A, July) 67
Bending of nonuniform plates with asymmetric thickness variation—Inclusion of shear deformation. S. T. Gulati and O. Ozaltin (AIAA J) 174
Prediction of inlet duct overpressures resulting from engine surge. Franklin L. Marshall (JA) 274
Atmospheric turbulence. John C. Houbolt (AIAA J, Dryden Research Lecture) 421
Application of advanced methods to design loads determination for the L-1011 transport. Warren A. Stauffer, John G. Lewolt, and Frederic M. Hoblit (JA) 449
Dynamic gust, landing, and taxi loads determination in the design of the L-1011. Warren A. Stauffer and Frederic M. Hoblit (JA) 459
Static aeroelasticity and the flying wing. Terrance A. Weisshaar and Holt Ashley (JA) 586
Computer aided design-drafting (CADD)—Engineering/manufacturing tool. C. H. English (JA) 747
Stresses in a fiber-reinforced elastic sheet containing a circular hole. C. I. Chang and H. D. Conway (AIAA J) 806
Optimum design of stressed skin structures. Geoffrev G. Pope (AIAA J) 1545
Fuel tank wall response to hydraulic ram during the shock phase. R. E. Ball, H. L. Power, and A. E. Fuhs (JA, EN) 571
Buckling of orthotropic, curved, sandwich panels in shear and axial compression. Otha B. Davenport and Charles W. Bert (JA, EN) 632
Design of crashworthy aircraft cabins based on dynamic buckling. Cary A. Fisher and Charles W. Bert (JA, EN) 693
Dynamically-induced large deformations of multilayer, variable thickness shells. John W. Leech, Emmett A. Witmer, and Luigi Morino (AIAA J, TN) 1189
Design of least weight structures for prescribed buckling load. Kalayya Narayana Murthy and Paul Christiano (AIAA J, TN) 1773

Aircraft Structural Materials

Effects of prestressing boron/epoxy prepreg on composite strength properties. George J. Mills and Richard J. Dauksys (AIAA J, SYN) 1459
Fracture phenomena in advanced fiber composite materials. H. J. Konish Jr., J. L. Swedlow, and T. A. Cruse (AIAA J) 40
Developing structures technology for the day after tomorrow. George W. Brooks (A/A, July) 56
Bending of nonuniform plates with asymmetric thickness variation—Inclusion of shear deformation. S. T. Gulati and O. Ozaltin (AIAA J) 174
Fracture mechanics applications in materials selection, fabrication sequencing and inspection. William E. Krupp and David W. Hoeppner (JA) 682

Aircraft Subsystem Design

Stress distribution and displacements in a lubricated elastic seal. F. Edward Ehlers (JA, SYN) 3
Some effects of bias errors in redundant flight control systems. Robert F. Stengel (JA) 150
Airborne recording and its future with the airlines. Frank D. Wise (JA) 232
Control system design considerations for a longitudinally unstable supersonic transport. Lloyd R. Tomlinson (JA) 594
Optimal skin thickness variations for active cooled panels. R. D. Wagner (JA, EN) 572

Aircraft Testing (including Component Wind Tunnel Testing)

Method for increasing wind tunnel Mach number for large-scale inlet testing. Eldon A. Latham and Norman E. Sorensen (JA, SYN) 577
Evaluation of aerodynamic derivatives from a magnetic balance system. Boray S. Raghunath and Hermon M. Parker (AIAA J, SYN) 897
A general solution for lift interference in rectangular ventilated wind tunnels. E. M. Kraft and C. F. Lo (AIAA J, SYN) 1365
Flight test studies of the formation and dissipation of trailing vortices. Howard Chevalier (JA) 14
Dual-hologram interferometry: A new technique for wind-tunnel testing. (A/A, December) 27
Hypersonic flows in large-scale inlet models. William R. Seebaugh (JA) 38
Aerodynamics of a fixed ground plane for a powered STOL wind-tunnel method. J. E. Hackett and J. L. Justice (JA) 137
Simulation of velocity profiles by shaped gauze screens. J. L. Livesey and E. M. Laws (AIAA J) 184
Experimental landings in a spoiler-equipped light aircraft. Edward Seckel, David R. Ellis, and John W. Olcott (JA) 220
Airborne recording and its future with the airlines. Frank D. Wise (JA) 232
Quasi-linearization technique for estimating aircraft states from flight data. Rodney C. Wingrove (JA) 303
Dynamic modeling of high bypass ratio turbofan engines. J. C. Breaks (JA) 350
Design and development of the United Aircraft Research Laboratories Acoustic Research Tunnel. Robert W. Paterson, Paul G. Vogt, and William M. Foley (JA) 427
An altitude test facility for large turbofan engines. Peter F. Ashwood (JA) 468
Flyover noise testing of commercial jet airplanes. E. L. Zwieback (JA) 538
Transonic flow quality improvements in a blowdown wind tunnel. James M. Cooksey and John W. Arnold (JA) 554
Half- and full-model experiments on slender cones at angle of attack. K. J. Orlik-Rückemann, J. G. LaBerge, and S. Iyengar (JSR) 575
High-Reynolds-number cryogenic wind tunnel. Michael J. Goodyer and Robert A. Kilgore (AIAA J) 613
Aerodynamics of high-performance Ludwieg tubes. David A. Russell and Kwok-On Tong (AIAA J) 642
Wind-tunnel wall interference effects for 20° cone-cylinders. John William Davis and Robert F. Graham (JSR) 671
Flutter of pairs of aerodynamically interfering delta wings. Richard R. Chipman, Frank J. Rauch, and Robert W. Hess (JA) 728
Rapid scanning, three-dimensional hot-wire anemometer surveys of wing-tip vortices. V. R. Corsiglia, R. G. Schwind, and N. A. Chigier (JA) 752
Determination of free-body responses from constrained tests. Alex Berman and Nicholas Giansante (AIAA J) 1622
Aircraft wing-tip vortex modification. Philip O. Jarvinen (JA, EN) 63
Blockage corrections for large bluff bodies near a wall in a closed jet wind tunnel. T. N. Krishnaswamy, G. N. V. Rao, and K. R. Reddy (JA, EN) 634
A criterion for assessing wind-tunnel wall interference at Mach 1. Theodore R. Goodman (JA, EN) 695

Aircraft Vibration

A dynamic analysis for elastic structures interacting with rotating machinery. Teh H. Lee (JA) 45

Determining STOL ride quality criteria—passenger acceptance. Ira D. Jacobson and A. Robert Kuhlthau (JA) 163
Estimation of control surface dynamic derivatives from flight test data. B. M. Hall, M. S. Sholar, and A. P. Allred (AIAA J) 312
Analysis of airplane response to nonstationary turbulence including wing bending flexibility. Yoshinori Fujimori and Y. K. Lin (AIAA J) 334
——Analysis of airplane response to nonstationary turbulence including wing bending flexibility II. Yoshinori Fujimori and Y. K. Lin (AIAA J, TN) 1343
Analysis of normal shock noise measurements on nose-cylinder bodies. J. Peter Reding and Lars E. Ericsson (JSR) 421
Synthesis of shuttle vehicle damping using substructure test results. Daniel D. Kana and Stephen Huzar (JSR) 790
Response of a rigid aircraft to nonstationary atmospheric turbulence. Joseph M. Verdon and Roy Steiner (AIAA J) 1086
Digital tuning as an exploratory tool in the modal analysis of randomly-loaded vibrating structures. D. R. Cruise and R. G. Christiansen (AIAA J) 1539
Normal mode solution to the equations of motion of a flexible airplane. Peter D. Schmitz (JA, EN) 318
The influence of pitch and twist on blade vibrations. Maurice I. Young (JA, EN) 383
Galerkin finite element method for vibration problems. K. S. R. K. Prasad and A. V. Krishna Murty (AIAA J, TN) 544
Lowest critical velocity of rotating shafts. Bruno Atzori and Graziano Curti (AIAA J, TN) 885
Flexibility coefficients for bending of a disk under sinusoidal edge loading. Joseph A. Dopkin and Terry E. Shoup (AIAA J, TN) 1339

Air Transportation Systems

Recent advances in aerodynamics for transport aircraft. Part I. Lloyd T. Goodmanson and Louis B. Gratzer (A/A, December) 30
Door to door short haul. Fred R. Steven (A/A, March) 32
Structures for air transports. Eugene Styer (A/A, July) 36
The next careful steps in commercial aircraft structures. Paul L. Sandoz (A/A, July) 38
The many uses of the dirigible. Jack R. Hunt, Ben B. Levitt, Francis Morse, Kurt R. Stehling, and J. Gordon Vaeth (A/A, October) 58
Determining STOL ride quality criteria—passenger acceptance. Ira D. Jacobson and A. Robert Kuhlthau (JA) 163
Advanced technology applications to present and future transport aircraft. Richard E. Black and David G. Murphy (JA) 259
Hypersonic transports—Economics and environmental effects. Richard H. Petersen and Mark H. Waters (JA) 324
A view of air traffic control in future terminal areas. W. E. Willhelm and J. W. Schmidt (JA) 366
Dynamics of slung bodies utilizing a rotating wheel for stability. Edward C. Micale and Corrado Poli (JA, EN) 760

General Aviation Systems

Influences of international operations on aircraft-transport design. John G. Borger (Second William Littlewood Memorial Lecture; A/A, July) 24
Buckling of orthotropic, curved, sandwich panels in shear and axial compression. Otha B. Davenport and Charles W. Bert (JA, EN) 632
Design of crashworthy aircraft cabins based on dynamic buckling. Cary A. Fisher and Charles W. Bert (JA, EN) 693

Ground Support Systems

Door to door short haul. Fred R. Steven (A/A, March) 32

Military Aircraft Missions

DAIS: A major crossroad in the development of avionic systems. Bernard List (A/A, January) 55
Differential turns. Henry J. Kelley and Leon Lefton (AIAA J) 858

AIRCRAFT TECHNOLOGY, VTOL

Ground (or Water-Surface) Effect Machines

Design loadings and structural considerations for tracked air cushion research vehicle. John D. Pierson (JA) 503
Minimum induced drag of a hemi-circular ground effect wing. Hiroshi Mamada and Shigenori Ando (JA) 660

Rotary Wing Aerodynamics

A perturbation solution of helicopter rotor flapping stability. Wayne Johnson (JA, SYN) 257
Calculation of unsteady and three-dimensional boundary-layer flows. H. A. Dwyer (AIAA J, SYN) 773
Rotor blade response to random loads: A direct time-domain approach. F. Y. M. Wan and C. Lakshmikantham (AIAA J) 24
Complex coordinates in near hovering rotor dynamics. H. C. Curtiss Jr. (JA) 289
Inviscid flowfield of an unsteady airfoil. W. J. McCroskey (AIAA J) 1130
A preliminary analytical and experimental investigation of helicopter rotor boundary layers. Dwight A. Blaser and Henry R. Velkoff (AIAA J) 1660
Model tests on unsteady rotor wake effects. Kurt H. Hohenemser and S. T. Crews (JA, EN) 58
The dynamics of blade pitch control. Maurice I. Young (JA, EN) 446
An unsteady wake model for a hingeless rotor. S. T. Crews, K. H. Hohenemser, and R. A. Ormiston (JA, EN) 758

VTOL Aircraft Design

Conformal mapping for potential flow about airfoils with attached flap. Vernon J. Rossow (JA, EN) 60
A simple estimate of the effect of ejector length on thrust augmentation. Brian Quinn (JA, EN) 313
Installation effects on performance of multiple model V/STOL lift fans. J. H. Diedrich, N. Clough, and S. Lieblein (JA) 355
The influence of pitch and twist on blade vibrations. Maurice I. Young (JA, EN) 383

VTOL Cabin Habitability and Design

VTOL Flight Operations

Reduction of VTOL operational noise through flight trajectory management. Fredric H. Schmitz and W. Z. Stepniewski (JA) 385
Flight director design for a STOL aircraft. W. R. Seitz and R. E. Goodson (JA) 491

VTOL Ground Support Systems

VTOL Handling, Stability, and Control

Dynamics of slung bodies using a single-point suspension system. Corrado Poli and Duane Cromack (JA) 80
Identification and optimization of aircraft dynamics. Kumpati S. Narendra and Shiva S. Tripathi (JA) 193
Inclusion of rotor dynamics in controller design for helicopters. W. E. Hall Jr. and A. E. Bryson Jr. (JA) 200
Complex coordinates in near hovering rotor dynamics. H. C. Curtiss Jr. (JA) 289
Effect of steady state coning angle and damping on whirl flutter stability. Krishna Rao Venkata Kaza (JA) 664
The dynamics of blade pitch control. Maurice I. Young (JA, EN) 446
Dynamics of slung bodies utilizing a rotating wheel for stability. Edward C. Micale and Corrado Poli (JA, EN) 760

VTOL Landing Dynamics

VTOL Missions and Transportation Systems

Reduction of VTOL operational noise through flight trajectory management. Fredric H. Schmitz and W. Z. Stepniewski (JA) 385

VTOL Powerplant Design and Installation

Performance characteristics of a model VTOL lift fan in crossflow. S. Lieblein, J. A. Yuska, and J. H. Diedrich (JA) 131
A simple estimate of the effect of ejector length on thrust augmentation. Brian Quinn (JA, EN) 313
Installation effects on performance of multiple model V/STOL lift fans. J. H. Diedrich, N. Clough, and S. Lieblein (JA) 355

VTOL Structural Design (including Loads)

VTOL Testing

Performance characteristics of a model VTOL lift fan in crossflow. S. Lieblein, J. A. Yuska, and J. H. Diedrich (JA) 131
Installation effects on performance of multiple model V/STOL lift fans. J. H. Diedrich, N. Clough, and S. Lieblein (JA) 355
An experimental investigation of a jet issuing from a wing in crossflow. W. Mikolowsky and H. McMahon (JA) 546

VTOL Vibration

Rotor blade response to random loads: A direct time-domain approach. F. Y. M. Wan and C. Lakshmikantham (AIAA J) 24
Aeroelastic instabilities of hingeless helicopter blades. Peretz Friedmann (JA) 623
The influence of pitch and twist on blade vibrations. Maurice I. Young (JA, EN) 383
Flexibility coefficients for bending of a disk under sinusoidal edge loading. Joseph A. Dopkin and Terry E. Shoup (AIAA J, TN) 1339

FLUID DYNAMICS

Boundary Layers and Convective Heat Transfer—Laminar

Magnus effect on spinning bodies of revolution. H. L. Power and J. D. Iversen (AIAA J, SYN) 417
Downstream influence of film-cooling in a high-speed laminar boundary layer. Anthony L. Laganelli and Richard P. Fogaroli (AIAA J, SYN) 581
Calculation of unsteady and three-dimensional boundary-layer flows. H. A. Dwyer (AIAA J, SYN) 773
A survey of the effects of small protuberances on boundary-layer flows. Raymond Sedney (AIAA J, SA) 782
Heat-transfer and ablation-rate correlations for re-entry heat shield and nosetip applications. Kurt E. Putz and Eugene P. Barlett (JSR) 15
Density stratified, viscous flow past a flat plate. Joseph A. Schetz, Stanley Favin, and Louis W. Ehrlich (JH) 22
Laminar film boiling on inclined isothermal flat plates. H. R. Nagendra (AIAA J) 72
PAET entry heating and heat protection experiment. Nick S. Vojvodich (JSR) 181
Surface curvature and lateral pressure gradient effects on laminar boundary-layer separation. G. R. Inger and B. Dutt (JA) 200
Inviscid surface streamlines and heat transfer on shuttle-type configurations. Fred R. De Jarnette and H. Harris Hamilton (JSR) 314
Laminar boundary layer on a cone near a plane of symmetry. Peter Wu and Paul A. Libby (AIAA J) 326
Initial conditions for the hypersonic-shock/boundary-layer interaction problem. M. J. Werle, D. L. Dwoyer, and W. L. Hankey (AIAA J) 525
Prevention of transition over a backward step by suction. Mansop Hahn and W. Pfenninger (JA) 618
Effect of surface catalytic activity on stagnation heat-transfer rates. L. A. Anderson (AIAA J) 649
Fin induced laminar interactions on sharp and spherically blunted cones. T. Taz Bramlette, Richard R. Smith, and Neil J. Sliski (JSR) 696
Shuttle orbiter re-entry flowfields at high angle of attack. William C. Rochelle, Barney B. Roberts, Leo d'Attorre, and M. A. Bilyk (JSR) 783
Mathematical formulation of viscous-inviscid interaction problems in supersonic flow. Gabriel Miller (AIAA J) 938
A Magnus theory. H. R. Vaughn and G. E. Reis (AIAA J) 1396
Effect of disturbances on the heat transfer of a laminar axisymmetric boundary layer. R. D. Small and J. Rom (AIAA J) 1503
A preliminary analytical and experimental investigation of helicopter rotor boundary layers. Dwight A. Blaser and Henry R. Velkoff (AIAA J) 1660
Experimental study of supersonic laminar base flow with and without suction. Antoni K. Jakubowski and Clark H. Lewis (AIAA J) 1670
Analysis of the chemically reacting laminar boundary layer during hybrid combustion. Herman Krier and Harold Kerzner (AIAA J) 1691
Nonsimilar flows between the solution branches of the Falkner-Skan equation. Peter Wu and Paul A. Libby (AIAA J, TN) 112
Asymptotic suction flow of power-law fluids. Chang-yu Liu (JH, EN) 135
Approximate method for calculating heat transfer to yawed cylinders in laminar flow. Shoichi Sayano and George F. Greenwald (JSR, EN) 157
Heat-transfer measurements for cylindrical configurations in hypersonic streams. John J. Bertin, J. Parker Lamb, Jeffrey L. Zickler, and Winston D. Goodrich (JSR, EN) 217
Contribution in unsteady flow of power-law fluids. Sreedhan Roy (AIAA J, TN) 238
An experimental investigation of base heating on typical Mars entry body shapes. O. L. Zappa and W. G. Reinecke (JSR, EN) 273
Atomic recombination rate determination through heat-transfer measurement. Chul Park, Lewis A. Anderson, and Robert E. Sheldahl (AIAA J, TN) 372
Engineering analysis of reattaching shear layer heat transfer. D. E. Nestler (AIAA J, TN) 390
Entrance region heat transfer between parallel plates with uniform wall temperature. Y. S. Lou and L. O. Barton (AIAA J, TN) 393
Nonlinear problem of a shock-tube interaction-region boundary layer. Roop N. Gupta (AIAA J, TN) 548
Laminar symmetry-plane boundary layer on a sharp spinning body at incidence. C. B. Watkins (AIAA J, TN) 559
Cold-plate design analysis for electronic equipment. Eugene D. Veilleux (JSR, EN) 680
Entropy layer effects in constant pressure hypersonic boundary layers. P. A. Sullivan and W. W. Koziak (AIAA J, TN) 730
Increase of boundary-layer heat transfer by mass injection. K. Gersten and J. F. Gross (AIAA J, TN) 738
Transient forced convection heat transfer from an isothermal flat plate. H. R. Nagendra (AIAA J, TN) 876
Local potential variational method applied to Hiemenz flow. Robert T. Doty and Edward F. Blick (AIAA J, TN) 880
Approximate method of solution for three-dimensional boundary layers. Y. S. Chou (AIAA J, TN) 1025
Correlation of the mass flow rate in the laminar boundary layer on a sphere-cone. Frederick G. Blottner (AIAA J, TN) 1044
Numerical stability of boundary layers with massive blowing. T.-M. Liu and P. R. Nachtsheim (AIAA J, TN) 1197
Improvement to Klineberg's method for the calculation of viscous-inviscid interactions in supersonic flow. Bernard G. Gautier and Jean J. Ginoux (AIAA J, TN) 1323
Branching solutions for supersonic interacting boundary layers. W. L. Hankey, D. L. Dwoyer, and M. J. Werle (AIAA J, TN) 1349
Multiple slot laminar film cooling. Arthur Sherman, Hsuan Yeh, Eli Reshotko, and Edward McAssey Jr. (AIAA J, TN) 1413
Reattachment of a separated boundary layer to a convex surface. James L. Amick and Tariq Masoud (AIAA J, TN) 1426
Solution of nonlinear problems in magnetofluiddynamics and non-Newtonian fluid mechanics through parametric differentiation. G. Nath (AIAA J, TN) 1429
Transpiration cooling in three-dimensional laminar boundary-layer flow near a stagnation point. D. R. Jeng and Donald W. Williams (AIAA J, TN) 1560
Unsteady boundary-layer flow of power law fluids. Sreedhan Roy (AIAA J, TN) 1581
Shooting method for solution of boundary-layer flows with massive blowing. Tsong-Mou Liu and Philip R. Nachtsheim (AIAA J, TN) 1584
Sweep effects on supersonic separated flows—A numerical study. M. J. Werle, V. N. Vatsa, and S. D. Bertke (AIAA J, TN) 1763
Laminar boundary layer in noncentered unsteady waves. J. Gordon Hall, G. Srinivasan, and Jaipal S. Rathi (AIAA J, TN) 1770
Comment on "Laminar thermal boundary layers on continuous surfaces." H. E. Eickhoff (AIAA J, TC) 895
——Reply by authors to H. E. Eickhoff. C. A. Rhodes and H. Kaminer Jr. (AIAA J, TC) 895
Comment on "Skin friction on porous surfaces calculated by a simple integral method." G. R. Inger (AIAA J, TC) 1356
——Reply by author to G. R. Inger. Tse-Fou Zien (AIAA J, TC) 1357
Comment on "Compressible boundary-layer equations solved by the method of parameter differentiation." Tsung Y. Na (AIAA J, TC) 1790
——Reply by authors to Tsung Y. Na. C. L. Narayana and P. Ramamoorthy (AIAA J, TC) 1791

Boundary Layers and Convective Heat Transfer—Turbulent

Shock wave/turbulent boundary-layer interactions in rectangular channels. Daniel C. Reda and John D. Murphy (AIAA J, SYN) 139
Parametric relations for ordinary and confluent turbulent boundary-layer flows. Suresh H. Goradia and Gene T. Colwell (AIAA J, SYN) 583
Experimental study of slot injection into a supersonic stream. Michael Kenworthy and Joseph A. Schetz (AIAA J, SYN) 585
Sidewall boundary-layer influence on shock wave/turbulent boundary-layer interactions. Daniel C. Reda and John D. Murphy (AIAA J, SYN) 1367
Evaluation of Preston tube calibration equations in supersonic flow. Jerry M. Allen (AIAA J, SYN) 1461
A survey of the mean turbulent field closure models. George L. Mellor and H. James Herring (AIAA J, SA) 590
A survey of the effects of small protuberances on boundary-layer flows. Raymond Sedney (AIAA J, SA) 782
Heat-transfer and ablation-rate correlations for re-entry heat-shield and nosetip applications. Kurt E. Putz and Eugene P. Bartlett (JSR) 15
Dual-hologram interferometry: A new technique for wind-tunnel testing. (A/A, December) 27
Supersonic turbulent boundary layer subjected to adverse pressure gradients. P. J. Waltrup and J. A. Schetz (AIAA J) 50
Measurements of the boundary-layer growth in annular diffusers. Stanley J. Stevens and Peter Fry (JA) 73
Inviscid surface streamlines and heat transfer on shuttle-type configurations. Fred R. De Jarnette and H. Harris Hamilton (JSR) 314
Mean velocity profiles in three-dimensional incompressible turbulent boundary layers. T. S. Prahlad (AIAA J) 359
Calculation of turbulent boundary layers and wall jets over curved surfaces. F. A. Dvorak (AIAA J) 517
Surface temperature effect on subsonic stall. David J. Norton, John M. Macha, and James C. Young (JSR) 581
Aerodynamics of high-performance Ludwieg tubes. David A. Russell and Kwok-On Tong (AIAA J) 642
Shuttle orbiter re-entry flowfields at high angle of attack. William C. Rochelle, Barney B. Roberts, Leo d'Attorre, and M. A. Bilyk (JSR) 783
Analysis of turbulent skin friction in thick axisymmetric boundary layers. F. M. White, R. C. Lessmann, and G. H. Christoph (AIAA J) 821
A small cross flow theory for three-dimensional, compressible, turbulent boundary layers on adiabatic walls. J. Richard Shanebrook and William J. Sumner (AIAA J) 950
Prediction of inert turbulent swirl flows. David G. Lilley (AIAA J) 955
Turbulent boundary-layer flow from stationary to moving surfaces. J. S. Tennant and T. Yang (AIAA J) 1156
Crosshatch surface patterns—Comparison of experiment with theory. C. O. White and R. M. Grabow (AIAA J) 1316
Numerical analysis of eddy viscosity models in supersonic turbulent boundary layers. J. S. Shang, W. L. Hankey Jr., and D. L. Dwoyer (AIAA J) 1677
Kinematic eddy viscosity at low Reynolds numbers. Tuncer Cebeci (AIAA J, TN) 102

Heat transfer downstream of attachment of a turbulent supersonic shear layer. Philip M. Gerhart (AIAA J, TN) 104
Axisymmetrical turbulent boundary layer along a slender cylinder. Chang-yu Liu and Yau-tien Dai (JH, EN) 133
Variation of the Van Driest damping parameter with mass transfer. Tuncer Cebeci (AIAA J, TN) 237
Reference temperature method for predicting turbulent compressible skin-friction coefficient. Frank L. Clark and Theodore R. Creel Jr. (AIAA J, TN) 239
A subsonic diffuser with moving walls for boundary-layer control. Jeffrey S. Tennant (AIAA J, TN) 240
A generalized correlation of roughness density effects on the turbulent boundary layer. Roger L. Simpson (AIAA J, TN) 242
Influence of moderate wall cooling on cone transition at $M_e = 13.7$ in helium. Michael C. Fischer (JSR, EN) 282
A modified wall wake velocity profile for turbulent compressible boundary layers. Chen-Chih Sun and Morris E. Childs (JA, EN) 381
Engineering analysis of reattaching shear layer heat transfer. D. E. Nestler (AIAA J, TN) 390
Scaling of performance and thermal environment in fuel-vortex cooled rocket engines. K. Berman, T. Ferger, N. Roth, and A. Blessing (JSR, EN) 476
Calculation of turbulent skin friction on a rotating disk. Richard C. Lessman and George H. Christoph (AIAA J, TN) 542
——Calculation of turbulent skin friction on a rotating disk. Richard C. Lessmann and George H. Christoph (AIAA J, ERR) 1600
Prediction of heat transfer for turbulent boundary layer with pressure gradient. P. M. Gerhart and L. C. Thomas (AIAA J, TN) 552
Calculation of transitional boundary-layer flows. D. M. Bushnell and D. W. Alston (AIAA J, TN) 554
Effects of upstream wall temperatures on hypersonic tunnel wall boundary-layer profile measurements. William V. Feller (AIAA J, TN) 556
Diffusion of heat from a line source downstream of a turbulent grid. Paul A. Libby and Carl A. Scragg (AIAA J, TN) 562
Turbulent heat transfer to a fin leading edge—Flight test results. E. Clark Lemmon and Hugh W. Coleman (AIAA J, TN) 571
Thermodynamic expansion processes for argon plasma in a convergent-divergent nozzle. Tarit K. Bose (JSR, EN) 613
Simultaneous comparison of turbulent gas fluctuations by laser Doppler and hot wire. William C. Cliff, Charles E. Fuller III, and Virgil A. Sandborn (AIAA J, TN) 748
Incipient separation pressure rise for a Mach 3.8 turbulent boundary layer. William C. Rose, Richard J. Page, and Morris E. Childs (AIAA J, TN) 761
Turbulent interference heating on several small fin configurations. Hugh W. Coleman and E. Clark Lemmon (JSR, EN) 820
Calculation of turbulent heat transfer and skin friction. George H. Christoph, Richard C. Lessmann, and Frank M. White (AIAA J, TN) 1046
Application of dual hologram interferometry to wind-tunnel testing. Roger J. Radley Jr. and Albert G. Havener (AIAA J, TN) 1332
Aerodynamic interference of pitot tubes in a turbulent boundary layer at supersonic speed. R. E. Wilson (AIAA J, TN) 1420
Reattachment of a separated boundary layer to a convex surface. James L. Amick and Tariq Masoud (AIAA J, TN) 1426
Three-dimensional separation for interaction of shock waves with turbulent boundary layers. Theodore J. Goldberg (AIAA J, TN) 1573
A simple correlation for incipient turbulent boundary-layer separation due to a skewed shock wave. R. H. Korkegi (AIAA J, TN) 1578
Calculation of turbulent boundary-layer shock-wave interaction. David C. Wilcox (AIAA J, TN) 1592
Reynolds stress measurements in a hypersonic boundary layer. A Demetriades and A. J. Laderman (AIAA J, TN) 1594
Selected statistical properties in the inner region of a transpired turbulent boundary layer. L. K. Isaacson and R. L. Peterson (AIAA J, TN) 1758
Hot-wire coil probe for high-speed flows. Leonard M. Weinstein (AIAA J, TN) 1772
Van Driest generalization applied to turbulent skin friction and velocity profiles measured on the wall of a Mach 7.4 wind tunnel. Earl R. Keener and Edward J. Hopkins (AIAA J, TN) 1784
Hypersonic flight results showing Reynolds-number influence on turbulent base pressure. Bruce M. Bulmer (AIAA J, TN) 1785
Comment on "Wall layer of plane turbulent wall jets without pressure gradients." Peter Bradshaw (JA, TC) 698
Comment on "Mean velocity profile of a thick turbulent boundary layer along a circular cylinder." Peter Bradshaw and V. C. Patel (AIAA J, TC) 893
——Reply by author to P. Bradshaw and V. C. Patel. David M. Chase (AIAA J, TC) 894

Boundary-Layer Stability and Transition

Influence of boundary-layer stability on the Magnus effect. Ira D. Jacobson and J. B. Morton (AIAA J, SYN) 8
A survey of the effects of small protuberances on boundary-layer flows. Raymond Sedney (AIAA J, SA) 782
A force field theory: Part I. Laminar flow instability. Joshua C. Anyiwo (AIAA J) 43
Experimental determination of the aeroacoustic environment about a slender cone. A. Martellucci, L. Chaump, D. Rogers, and D. Smith (AIAA J) 635
Detection of flight vehicle transition from base measurements. Bruce M. Bulmer (JSR, EN) 280
Influence of moderate wall cooling on cone transition at $M_e = 13.7$ in helium. Michael C. Fischer (JSR, EN) 282
Boundary-layer distortion on a spinning cone. Walter B. Sturek (AIAA J, TN) 395
Influence of total temperature on transition in supersonic flow. R. Ross (AIAA J, TN) 563
Sensitivity of boundary-layer transition to surface irregularities for space shuttle applications. S. R. Pate and R. J. Eaves Jr. (JSR, EN) 813
The effect of angle of attack on boundary-layer transition on cones. George C. Mateer (AIAA J, ERR) 256

Hydrodynamics

Measurement of system inertia tensors in precessing nonrigid systems. James P. Vanyo (AIAA J, SYN) 577
Study of the effects of pressure-induced viscosity changes on the fluid flow characteristics in a circular tube. Robert L. Davis and Robert C. Weber (AIAA J, SYN) 905
Potential flow about body in finite stream. K. S. Satija (JH) 17
Density stratified, viscous flow past a flat plate. Joseph A. Schetz, Stanley Favin, and Louis W. Ehrlich (JH) 22
The lift force due to von Kármán's vortex wake. D. W. Sallet (JH) 161
Theoretical, quasi-static analysis of cavitation compliance in turbopumps. C. Brennen and A. J. Acosta (JSR) 175
Exact method of designing airfoils with given velocity distribution in incompressible flow. T. Strand (JA) 651
Swirling flows in streamtubes of variable cross section. Hartmut H. Bossel (AIAA J) 1161
Thermal and momentum diffusivity measurements in a turbulent stratified flow. Gordon Merritt and George Rudinger (AIAA J) 1465
Analysis of gas bubble-liquid coflow systems. Robert L. Stoy and Peter P. Ostrowski (JH, EN) 46
Bubble track technique for velocity measurement in stratified liquids. H. E. Gilreath and R. T. Fretz (JH, EN) 93
Nose pressure distribution and separation on an inclined axisymmetric body. Russell A. Smith and S. Nosakhare Evbouma (AIAA J, TN) 125
Injection of drag-reducing polymers into a turbulent boundary layer. Jin Wu (JH, EN) 129
Explanation of forces on a surface piercing strut after ventilation. R. C. McGregor, A. J. Wright, and P. D. Swales (JH, EN) 132
Frequency response of stationary internal wave probes. H. E. Gilreath and C. R. Walton (JH, EN) 170
A subsonic diffuser with moving walls for boundary-layer control. Jeffrey S. Tennant (AIAA J, TN) 240
Aerodynamic characteristics of vehicles traveling in perforated tubes. Steven F. Grittner and Bruce R. Munson (AIAA J, TN) 251
Hydrodynamic stability of density-stratified spiral flows. R. K. Rathy and Kailash Chandra (AIAA J, TN) 544
Earliest classic result for the turbulent hydraulic wake behind body of revolution. Raymond H. Cramer (JH, TC) 95
——Reply by authors to R. H. Cramer. P. K. Chang and Y. H. Oh (JH, TC) 96
Comment on "Added mass of a circular cylinder in contact with a rigid boundary." Theodore R. Goodman (JH, TC) 96
Comment on "Laminar thermal boundary layers on continuous surfaces." H. E. Eickhoff (AIAA J, TC) 895
——Reply by authors to H. E. Eickhoff. C. A. Rhodes and H. Kaminer Jr. (AIAA J, TC) 895
Drift of buoyant wing-tip vortices. Robert C. Costen (JA, ERR) 320

Jets, Wakes, and Viscid-Inviscid Flow Interactions

Interaction between an upstream facing wall jet and a supersonic stream. Renzo Piva (AIAA J, SYN) 6
Shock wave/turbulent boundary-layer interactions in rectangular channels. Daniel C. Reda and John D. Murphy (AIAA J, SYN) 139
Aerothermodynamic aspects of shock-interference patterns for shuttle configurations during entry. John J. Bertin, Bruce W. Graumann, and Winston D. Goodrich (JSR, SYN) 545
Parametric relations for ordinary and confluent turbulent boundary-layer flows. Suresh H. Goradia and Gene T. Colwell (AIAA J, SYN) 583
Experimental study of slot injection into a supersonic stream. Michael Kenworthy and Joseph A. Schetz (AIAA J, SYN) 585
Interaction of a laminar hypersonic boundary layer with a corner expansion wave. W. W. Koziak and P. A. Sullivan (AIAA J, SYN) 1057
Shock impingement caused by boundary-layer separation ahead of blunt fins. Louis G. Kaufman II, Robert H. Korkegi, and Leo C. Morton (AIAA J, SYN) 1363
Sidewall boundary-layer influence on shock wave/turbulent boundary-layer interactions. Daniel C. Reda and John D. Murphy (AIAA J, SYN) 1367

Boundary layer electron profiles for high-altitude entry of a blunt slender body. J. S. Evans, C. J. Schexnayder Jr., and Paul W. Huber (AIAA J, SYN) 1371
Decay of far-flowfield in trailing vortices. B. S. Baldwin, N. A. Chigier, and Y. S. Sheaffer (AIAA J, SYN) 1601
SSTs, ozone, and skin cancer. Francis S. Johnson (A/A, July) 16
An experimental study of a plane mixing layer. Rajni P. Patel (AIAA J) 67
The lift force due to von Kármán's vortex wake. D. W. Sallet (JH) 161
Flow properties of submerged heated effluents in a waterway. James F. Campbell and Joseph A. Schetz (AIAA J) 223
A base pressure experiment for determining the atmospheric pressure profile of planets. J. M. Cassanto (JSR) 253
Analysis of the interaction of jets and airfoils in two dimensions. C. A. Shollenberger (JA) 267
Effects of delta wing separation on shuttle dynamics. J. Peter Reding and Lars E. Ericsson (JSR) 421
Viking pitch damping derivatives as influenced by support interference and test techniques. Sy Steinberg, Bob L. Uselton, and Paul M. Siemers III (JSR) 443
Initial conditions for the hypersonic-shock/boundary-layer interaction problem. M. J. Werle, D. L. Dwoyer, and W. L. Hankey (AIAA J) 525
An experimental investigation of a jet issuing from a wing in crossflow. W. Mikolowsky and H. McMahon (JA) 546
An experimental investigation of turbulent transonic viscous-inviscid interactions. Irwin E. Alber, John W. Bacon, Bruce S. Masson, and Donald J. Collins (AIAA J) 620
Observations of atmospheric effects on vortex wake behavior. Ivar Tombach (JA) 641
Glow-discharge flow visualization in low-density free jets. S. S. Fisher and D. Bharathan (JSR) 658
Annular truncated plug nozzle flowfield and base pressure characteristics. Wayne P. Sule and Thomas J. Mueller (JSR) 689
Fin induced laminar interactions on sharp and spherically blunted cones. T. Taz Bramlette, Richard R. Smith, and Neil J. Sliski (JSR) 696
Dispersion and subsidence of the exhaust of a supersonic transport in the stratosphere. Thomas J. Overcamp and James A. Fay (JA) 720
Mathematical formulation of viscous-inviscid interaction problems in supersonic flow. Gabriel Miller (AIAA J) 938
Prediction of inert turbulent swirl flows. David G. Lilley (AIAA J) 955
Discrete vortex method of two-dimensional jet flaps. Junzo Sato (AIAA J) 968
Turbulent scattering spectra of electron density fluctuations in Mach 16 projectile wakes. Jay Fox and Harald Rungaldier (AIAA J) 1059
Inviscid flowfield of an unsteady airfoil. W. J. McCroskey (AIAA J) 1130
Hypersonic wake aerodynamics at high Reynolds numbers. Michael L. Finson (AIAA J) 1137
Turbulent correlation measurements in a two-stream mixing layer. B. G. Jones, H. P. Planchon, and R. J. Hammersley (AIAA J) 1146
Shear stress and turbulence intensity models for coflowing axisymmetric streams. S. W. Zelazny, J. H. Morgenthaler, and D. L. Herendeen (AIAA J) 1165
Effects of blunting and cooling on separation of laminar supersonic flow. J. Don Gray and R. W. Rhudy (AIAA J) 1296
Thermal and momentum diffusivity measurements in a turbulent stratified flow. Gordon Merritt and George Rudinger (AIAA J) 1465
Numerical and experimental investigation of the oscillating wake of a blunt-based body. A. E. Fanning and T. J. Mueller (AIAA J) 1486
Experimental study of supersonic laminar base flow with and without suction. Antoni K. Jakubowski and Clark H. Lewis (AIAA J) 1670
Turbulent wall-jets in conical diffusers. B. R. Ramaprian (AIAA J) 1684
Chemical modeling experimental facility. A. Mandl, S. A. Fogelson, and S. D. Hester (AIAA J) 1711
Aircraft wing-tip vortex modification. Philip O. Jarvinen (JA, EN) 63
Penetration of retrorocket exhausts into subsonic counterflows. Philip O. Jarvinen and Jacques A. F. Hill (JSR, EN) 85
Heat transfer downstream of attachment of a turbulent supersonic shear layer. Philip M. Gerhart (AIAA J, TN) 104
Application of hot wires to measurements in freely expanding jets. Michael Richard Davis (AIAA J, TN) 113
Flight test correlation technique for turbulent base heat transfer with low ablation. Bruce M. Bulmer (JSR, EN) 222
Experimental investigation of two-dimensional, supersonic flow impingement on a normal surface. Charles V. Knight (AIAA J, TN) 233
An experimental investigation of base heating on typical Mars entry body shapes. O. L. Zappa and W. G. Reinecke (JSR, EN) 273
Detection of flight vehicle transition from base measurements. Bruce M. Bulmer (JSR, EN) 280
Base drag calculations in supersonic turbulent axisymmetric flows. Patrick J. Roache (JSR, EN) 285
Effect of base mounted cylinders on a supersonic near wake. Richard A. Merz, Robert H. Page, and Christian E. G. Przirembel (JSR, EN) 470
Support wire disturbances in near viscous wakes of slender supersonic bodies. Kenneth A. Mirly and B. P. Selberg (JSR, EN) 474
Unique characteristics of exhaust-plume interference. Dave Bergman (JA, EN) 508
Influence of total temperature on transition in supersonic flow. R. Ross (AIAA J, TN) 563
Experimental study on optimization parameters of a supersonic jet ejector thrust augmentor. Dah Yu Cheng, Peter Wang, and Dean M. Chisel (JA, EN) 569
Turbulent heat transfer to a fin leading edge—Flight test results. E. Clark Lemmon and Hugh W. Coleman (AIAA J, TN) 571
Prediction of airfoil shock location in transonic flow. Victor E. Studwell and Jain-Ming Wu (JA, EN) 636
A nomogram for high-altitude plume structures. James Stark Draper and Emmett A. Sutton (JSR, EN) 682
Structure of Betz vortex cores. Peter F. Jordan (JA, EN) 691
Incipient separation pressure rise for a Mach 3.8 turbulent boundary layer. William C. Rose, Richard J. Page, and Morris E. Childs (AIAA J, TN) 761
Inviscid wake-airfoil interaction on multielement high lift systems. Alfred Moser and Carl A. Shollenberger (JA, EN) 765
Jet penetration at a sonic throat. Robert H. Nunn and Kenneth E. Frick (JSR, EN) 819
Supersonic combustion aid for liquid and gaseous fuels. J. J. Isaac and R. A. Cookson (AIAA J, TN) 1036
Plume boundary jump on an underexpanded jet exhausting counter to a freestream. D. L. Whitfield, H. K. Smithson, and L. L. Price (AIAA J, TN) 1336
Branching solutions for supersonic interacting boundary layers. W. L. Hankey, D. L. Dwoyer, and M. J. Werle (AIAA J, TN) 1349
Coherence measurements in an axisymmetric wake. J. B. Roberts (AIAA J, TN) 1569
Three-dimensional separation for interaction of shock waves with turbulent boundary layers. Theodore J. Goldberg (AIAA J, TN) 1573
A simple correlation for incipient turbulent boundary-layer separation due to a skewed shock wave. R. H. Korkegi (AIAA J, TN) 1578
Near-field trajectory of turbulent jets discharged at various inclinations into a uniform crossflow. Jin Wu (AIAA J, TN) 1579
Calculation of turbulent boundary-layer shock-wave interaction. David C. Wilcox (AIAA J, TN) 1592
Reynolds stress measurements in a hypersonic boundary layer. A. Demetriades and A. J. Laderman (AIAA J, TN) 1594
Sweep effects on supersonic separated flows—A numerical study. M. J. Werle, V. N. Vatsa, and S. D. Bertke (AIAA J, TN) 1763
Hypersonic flight results showing Reynolds-number influence on turbulent base pressure. Bruce M. Bulmer (AIAA J, TN) 1785
Earliest classic result for the turbulent hydraulic wake behind body of revolution. Raymond H. Cramer (JH, TC) 95
——Reply by authors to R. H. Cramer. P. K. Chang and Y. H. Oh (JH, TC) 96
Comment on "Reduction of noise from supersonic jet flows." Arthur G. Kurn (AIAA J, TC) 254
——Reply by authors to A. G. Kurn. Darshan S. Dosanjh and James C. Yu (AIAA J, TC) 415
Comments on "Low-area ratio, thrust-augmenting ejectors." Philip A. Graham (JA, TC) 701
——Reply to Comment by Philip A. Graham. Paul M. Bevilaqua (JA, TC) 703
——Comment on the Comment by Philip A. Graham and Reply by Paul M. Bevilaqua. William K. Greathouse (JA, TC) 704
Drift of buoyant wing-tip vortices. Robert C. Costen (JA, ERR) 320

Multiphase Flows

Two-phase Mach numbers in heat pipe analysis. Joseph W. Bursik (AIAA J, SYN) 781
Liquid jet injection into a supersonic flow. Edward A. Kush Jr. and Joseph A. Schetz (AIAA J, SYN) 1223
Thrust of an air-augmented waterjet. Robert G. Amos, Glennon Maples, and David F. Dyer (JH) 64
Theoretical, quasi-static analysis of cavitation compliance in turbopumps. C. Brennen and A. J. Acousta (JSR) 175
Dynamic behavior of solid particles suspended by polluted flow in a turbine stage. M. Fathy Hussein and W. Tabakoff (JA) 434
Iterative modeling of interior ballistics of small arms. A. M. Joglekar, M. S. Phadke, and S. M. Wu (JSR) 450
Optimum design of space storable gas/liquid coaxial injectors. R. J. Burick (JSR) 663
Drop size distribution resulting from liquid jet injection across a supersonic stream. D. W. Harvey (AIAA J) 826
Dusty hypersonic wedge flow. John Peddieson Jr. and Chung-Hsein Lyu (AIAA J, TN) 110
Simultaneous comparison of turbulent gas fluctuations by laser Doppler and hot wire. William C. Cliff, Charles E. Fuller III, and Virgil A. Sandborn (AIAA J, TN) 748

Nonsteady Aerodynamics

Experimental investigation of hypersonic buzz on a delta configuration. Robert L. Goldman and Henry J. Obremski (AIAA J, SYN) 1361
Stall-flutter analysis. Lars E. Ericsson and J. Peter Reding (JA) 5
Unsteady aerodynamics of nonplanar wings and wing-tail configurations of elastic flight vehicles in supersonic flight. Jack Morito Ii and William S. Rowe (JA) 19

Fluctuating lift and moment coefficients for cascaded airfoils in a nonuniform compressible flow. Sanford Fleeter (JA) 93
Unsteady thin-airfoil theory for subsonic flow. Colin Osborne (AIAA J) 205
——Closed-form lift and moment for Osborne's unsteady thin-airfoil theory. Nelson H. Kemp (AIAA J, TC) 1358
Elastic launch vehicle response to sinusoidal gusts. Lars E. Ericsson, J. Peter Reding, and Rolf A. Guenther (JSR) 244
Vortex noise of isolated airfoils. Robert W. Paterson, Paul G. Vogt, Martin R. Fink, and C. Lee Munch (JA) 296
Compressible unsteady interactions between blade rows. Colin Osborne (AIAA J) 340
——Compressible unsteady interactions between blade rows. Colin Osborne (AIAA J, ERR) 1360
Estimation of possible excitation frequencies for shallow rectangular cavities. Alan J. Bilanin and Eugene E. Covert (AIAA J) 347
Effects of delta wing separation on shuttle dynamics. J. Peter Reding and Lars E. Ericsson (JSR) 421
Analysis of normal shock noise measurements on nose-cylinder bodies. J. Peter Reding and Rolf A. Guenther (JSR) 429
Effect of thermally expanding surfaces on aerodynamic roll torques for cones. John B. McDevitt (AIAA J) 505
Lifting-surface theory for a wing oscillating in yaw and sideslip with an angle of attack. Koji Isogai and Teruo Ichikawa (AIAA J) 599
Downwash-velocity potential method for oscillating surfaces. John Kenneth Haviland and Young Sik Yoo (AIAA J) 607
A fluidic sounding rocket motor ignition system. V. P. Marchese, E. L. Rakowsky, and L. J. Bement (JSR) 731
Aerodynamic boundary layer effects on flutter and damping of plates. E. H. Dowell (JA) 734
Refinements in high-Reynolds number shock-tunnel technology. Roy Scott Hickman and James B. Kyser (AIAA J) 961
Inviscid flowfield of an unsteady airfoil. W. J. McCroskey (AIAA J) 1130
Linearized characteristics method for supersonic flow past vibrating shells. M. F. Platzer, C. W. Brix Jr. and K. A. Webster (AIAA J) 1302
Simplified aerodynamic theory of oscillating thin surfaces in subsonic flow. W. P. Jones and Jimmie A. Moore (AIAA J) 1305
Finite-element analysis of unsteady incompressible flow around an oscillating obstacle of arbitrary shape. Theodore Bratanow, Akin Ecer, and Michael Kobiske (AIAA J) 1471
Numerical and experimental investigation of the oscillating wake of a blunt-based body. A. E. Fanning and T. J. Mueller (AIAA J) 1486
An improved kernel function formulation for unsteady subsonic flow. Frederick D. Eichenbaum (AIAA J, TN) 123
Dynamic instability caused by forebody blowing. Lars E. Ericsson and Rolf A. Guenther (AIAA J, TN) 231
Contribution in unsteady flow of power-law fluids. Sreedhan Roy (AIAA J, TN) 238
Relative magnitudes of stresses caused by static and dynamic launch vehicle loads. Lars E. Ericsson, J. Peter Reding, and Rolf A. Guenther (JSR, EN) 276
Aerodynamic loading on high-speed ground vehicles. Peter Crimi and Ronald A. Johnson (JA, EN) 317
Flow properties fluctuations in a convergent-divergent nozzle. Tarit K. Bose (JSR, EN) 530
Helium bubble survey of an opening parachute flowfield. Paul C. Klimas (JA, EN) 567
Determination of rocket ignition induced silo transient pressures using an expansion tube. Michael J. Wayte and Fredric A. Gruenich (JSR, EN) 602
Linear theory of stall flutter. Jon D. Raggett (AIAA J, TN) 733
Diffraction and reflection of shocks from corners. M. G. Chopra (AIAA J, TN) 1452
Unsteady boundary-layer flow of power law fluids. Sreedhan Roy (AIAA J, TN) 1581
Derivation of aerodynamic Kernel functions. E. H. Dowell and C. S. Ventres (AIAA J, TN) 1586
Unsteady flow of power-law fluids. I. S. Habib and T. Y. Na (AIAA J, TN) 1588
Laminar boundary layer in noncentered unsteady waves. J. Gordon Hall, G. Srinivasan, and Jaipal S. Rathi (AIAA J, TN) 1770
Integral equation for small perturbations of irrotational flows. John Kenneth Haviland (AIAA J, TN) 1778
Closed-form lift and moment for Osborne's unsteady thin-airfoil theory. Nelson H. Kemp (AIAA J, TC) 1358

Nozzle and Channel Flow

Entropy in nonequilibrium nozzle flows of vibrationally relaxing diatomic gases. Ryuji Ishii (AIAA J, SYN) 137
Shock wave/turbulent boundary-layer interactions in rectangular channels. Daniel C. Reda and John D. Murphy (AIAA J, SYN) 139
Time-dependent analysis of nonequilibrium nozzle flows with complex chemistry. J. S. Vamos and J. D. Anderson Jr. (JSR, SYN) 225
Starting process in the nozzle of a nonreflected shock tunnel. R. J. Stalker and N. R. Mudford (AIAA J, SYN) 265
Sidewall boundary-layer influence on shock wave/turbulent boundary-layer interactions. Daniel C. Reda and John D. Murphy (AIAA J, SYN) 1367
Nonequilibrium nozzle expansions of carbon dioxide from a high-enthalpy reservoir. N. A. Ebrahim and H. G. Hornung (AIAA J, SYN) 1369
Laser-heated hypersonic wind tunnel. Victor R. Buonadonna, Charles J. Knight, and A. Hertzberg (AIAA J, SYN) 1457
Thrust of an air-augmented waterjet. Robert G. Amos, Glennon Maples, and David F. Dyer (JH) 64
Analytical and experimental investigations of laminar mixing of confined heterogeneous jets. Gideon Shavit and Zalman Lavan (AIAA J) 352
Compact ejector thrust augmentation. Brian Quinn (JA) 481
Calculation of nozzle flows using Padé fractions. Andrew H. Van Tuyl (AIAA J) 537
Transonic flow quality improvements in a blowdown wind tunnel. James M. Cooksey and John W. Arnold (JA) 554
Aerodynamics of high-performance Ludwieg tubes. David A. Russell and Kwok-On Tong (AIAA J) 642
Supersonic flow aerodynamic windows for high-power lasers. E. M. Parmentier and R. A. Greenberg (AIAA J) 943
Structure of shock waves in cylindrical ducts. P. J. Waltrup and F. S. Billig (AIAA J) 1404
Starting transient of solid-propellant rocket motors with high internal gas velocities. A. Peretz, K. K. Kuo, L. H. Caveny, and M. Summerfield (AIAA J) 1719
Experimental investigation of two-dimensional, supersonic flow impingement on a normal surface. Charles V. Knight (AIAA J, TN) 233
A subsonic diffuser with moving walls for boundary-layer control. Jeffrey S. Tennant (AIAA J, TN) 240
A simple estimate of the effect of ejector length on thrust augmentation. Brian Quinn (JA, EN) 313
Flow areas for series-parallel compartment venting to satisfy pressure differential requirements. Cecil E. Kirby and George W. Ivy (JSR, EN) 350
Pumping capacity of venturi exhausts. Jacques A. F. Hill and Philip O. Jarvinen (JA, EN) 444
Flow properties fluctuations in a convergent-divergent nozzle. Tarit K. Bose (JSR, EN) 530
Effects of upstream wall temperatures on hypersonic tunnel wall boundary-layer profile measurements. William V. Feller (AIAA J, TN) 556
Sonic line for a coaxial axisymmetric nozzle. William J. H. Smithey and Michael E. Naber (AIAA J, TN) 569
Thermodynamic expansion processes for argon plasma in a convergent-divergent nozzle. Tarit K. Bose (JSR, EN) 613
Prediction of precombustion wall pressure distributions in scramjet engines. P. J. Waltrup and F. S. Billig (JSR, EN) 620
Base pressures in flow expansions by hydraulic analogy. H. S. Ningappa and S. Narasimhan (AIAA J, TN) 727
Striated nozzle flow with small radius of curvature ratio throats. D. J. Norton and R. E. White (JSR, EN) 747
Jet penetration at a sonic throat. Robert H. Nunn and Kenneth E. Frick (JSR, EN) 819
An analytical study of hypersonic inlets in free molecule flow. Max Kinslow (AIAA J, TN) 1205
Nitrogen temperature determination in arc tunnel air flows. S. S. Lazdinis and R. F. Carpenter (AIAA J, TN) 1416
Analysis of the effects of a probe in the transonic region of a nozzle. Joseph A. Schetz and Stanley Favin (AIAA J, TN) 1453
Inviscid swirling flows through a choked nozzle. C. T. Hsu and A. D. DeJoode (AIAA J, TN) 1564
Comments on "Low-area ratio, thrust-augmenting ejectors." Philip A. Graham (JA, TC) 701
——Reply to Comment by Philip A. Graham. Paul M. Bevilaqua (JA, TC) 703
——Comment on the Comment by Philip A. Graham and Reply by Paul M. Bevilaqua. William K. Greathouse (JA, TC) 704

Plasma Dynamics and MHD

Influence of magnetic fields on anode losses in MPD-arcs. Wolfgang Schall (AIAA J, SYN) 10
Pressure and current effects on the thermal efficiency of an MPD arc used as a plasma source. Thomas J. Pivirotto (AIAA J, SYN) 12
A laboratory simulation of the ionospheric plasma. Daniel R. Pigache (AIAA J, SYN) 129
Establishment of quasi-steady operation in a pulsed MPD arcjet. Kyoichi Kuriki and Masaaki Inutake (AIAA J, SYN) 133
Exhaust flow and propulsion characteristics of a pulsed MPD-arc thruster. Charles J. Michels and Thomas M. York (AIAA J, SYN) 579
Steady-state interactions in plasma accelerators. R. S. Steinolfson (AIAA J, SYN) 779
Continuum electrostatic probes in the presence of negative ions: A numerical solution. Paul B. Bailey and Kenell J. Torryan (AIAA J, SYN) 1225
Heat transfer to a hemispherical body in a supersonic argon plasma. Robert J. Nowak and M. C. Yuen (AIAA J, SYN) 1463
Electrode and gasdynamic effects in a large nonequilibrium MHD generator. B. Zauderer and E. Tate (AIAA J) 149
Microwave and electrostatic probe measurements on a blunt re-entry vehicle. Dallas T. Hayes and Walter Rotman (AIAA J) 675
Discharge characteristics in cesium-seeded argon. Norman A. Evans (AIAA J) 683

Motion of solid D_2 under laser irradiation. Ralph S. Cooper (AIAA J) 831
Effects of channel size on the ionization instability in MHD generators. R. M. Evans and C. H. Kruger (AIAA J) 1006
Ion boundary layer on a flat plate. P. C. T. de Boer (AIAA J) 1012
Turbulent scattering spectra of electron density fluctuations in Mach 16 projectile wakes. Jay Fox and Harald Rungaldier (AIAA J) 1059
Investigation of the discharge structure in a noble gas alkali MHD generator plasma: Part I. G. Brederlow, K. J. Witte, and H. Zinko (AIAA J) 1065
Investigation of the discharge structure in a rare gas alkali MHD generator plasma: Part II. G. Brederlow and K. J. Witte (AIAA J) 1072
Boundary-layer plasma of a re-entry vehicle: A comparison of prediction models and flight measurements. R. E. Kiel, R. F. Bergeron Jr., T. J. Kessler, and A. E. Kaplan (AIAA J) 1235
Nonequilibrium flow calculations for the hydrogen constricted arc. Robert K. Scott and Frank P. Incropera (AIAA J) 1714
Ion-current distributions around an electrically conductive body in ionized gas flow. Hiroshi Tsuji and Toshisuke Hirano (AIAA J, TN) 100
Numerical analysis of the viscous, hypersonic, MDH blunt-body problem. Chong-Yul Yoo and Robert W. Porter (AIAA J, TN) 383
Ion current at the forward stagnation region of an electrically conducting body. Toshisuke Hirano, Hirozo Shiratori, and Hiroshi Tsuji (AIAA J, TN) 887
Approximation to the collisional-radiative recombination coefficient in a partially ionized gas. Barry R. Maxwell and F. C. Wessling (AIAA J, TN) 1048
Multiring probe in a flowing ionospheric plasma. John W. Sheldon and Nobie H. Stone (AIAA J, TN) 1051
Coupled radiation with turbulent convection in electric arcs. R. Pyare and M. M. Abu-Romia (AIAA J, TN) 1188
Shock formation by a moving force field. R. S. Steinolfson (AIAA J, TN) 1201
The numerical prediction of streamer growth in MHD ducts. R. J. Uncles (AIAA J, TN) 1436
Measurement of arc radiation for selected spectral regions. J. B. Lee, F. P. Incropera, and R. C. Peterson (AIAA J, TN) 1455
Shock tube flow passing through a section of a linear MHD generator. J. J. Rosciszewski and T. T. Yeh (AIAA J, TN) 1756
Comments on "Theory of ion boundary layer." A. G. Hammitt (AIAA J, TC) 1597
——Reply by authors to A. G. Hammitt. P. C. T. deBoer and R. A. Johnson (AIAA J, TC) 1598

Radiatively Coupled Flows and Heat Transfer

Laser-heated hypersonic wind tunnel. Victor R. Buonadonna, Charles J. Knight, and A. Hertzberg (AIAA J, SYN) 1457
Ablation and radiation coupled viscous hypersonic shock layers. Carl D. Engel, Richard C. Farmer, and Ralph W. Pike (AIAA J) 1174
Influence of gradient of velocity upon the resonant radiative transfer in plasma flows. P. Valentin, M. Pinegre, and M. Terrier (AIAA J) 1698
Stagnation region radiative heating with steady-state ablation during Venus entry. Kenneth Sutton and R. A. Falanga (JSR, EN) 155
Coupled radiation with turbulent convection in electric arcs. R. Pyare and M. M. Abu-Romia (AIAA J, TN) 1188
Exact steady-state analogy of transient gas compression by coalescing waves. L. L. Lengyel (AIAA J, TN) 1347

Rarefied Flows

Glow-discharge flow visualization in low-density free jets. S. S. Fisher and D. Bharathan (JSR) 658
Analysis of gas flow through a multilayer insulation system. J. T. Lin (AIAA J) 995
Mean free path of emitted molecules and correlation of sphere drag data. David L. Whitfield (AIAA J) 1666
Application of hot wires to measurements in freely expanding jets. Michael Richard Davis (AIAA J, TN) 113
Drag coefficients for cones and cylinders according to Schamberg's model. Mildred M. Moe and Louis C. Tsang (AIAA J, TN) 396
Multiring probe in a flowing ionosphere plasma. John W. Sheldon and Nobie H. Stone (AIAA J, TN) 1051
An analytical study of hypersonic inlets in free molecule flow. Max Kinslow (AIAA J, TN) 1205
Plume boundary jump of an underexpanded jet exhausting counter to a freestream. D. L. Whitfield, H. K. Smithson, and L. L. Price (AIAA J, TN) 1336
Probe interference in high-speed rarefied flows. D. M. Cogan and J. K. Harvey (AIAA J, TN) 1765

Reactive Flows

Time-dependent analysis of nonequilibrium nozzle flows with complex chemistry. J. S. Vamos and J. D. Anderson Jr. (JSR, SYN) 225
An analytical and experimental study of supersonic combustion of hydrogen in vitiated air stream. Marshall C. Burrows and Anatole P. Kurkov (AIAA J, SYN) 1217
Nonequilibrium nozzle expansions of carbon dioxide from a high-enthalpy reservoir. N. A. Ebrahim and H. G. Hornung (AIAA J, SYN) 1369
Boundary layer electron profiles for high-altitude entry of a blunt slender body. J. S. Evans, C. J. Schexnayder Jr., and Paul W. Huber (AIAA J, SYN) 1371
Simplified model of CW diffusion-type chemical laser. H. Mirels, R. Hofland, and W. S. King (AIAA J) 156
Effect of surface catalytic activity on stagnation heat-transfer rates. L. A. Anderson (AIAA J) 649
Multishocked, three-dimensional supersonic flowfields with real gas effects. P. Kutler, W. A. Reinhardt, and R. F. Warming (AIAA J) 657
Nitric oxide formation in gas turbine combustors. R. Kollrack and L. D. Aceto (AIAA J) 664
Experimental CW chemical laser studies. D. J. Spencer and R. L. Varwig (AIAA J) 1000
Turbulent scattering spectra of electron density fluctuations in Mach 16 projectile wakes. Jay Fox and Harald Rungaldier (AIAA J) 1059
Boundary-layer plasma of a re-entry vehicle: A comparison of prediction models and flight measurements. R. E. Kiel, R. F. Bergeron Jr., T. J. Kessler, and A. E. Kaplan (AIAA J) 1235
Analysis of the chemically reacting laminar boundary layer during hybrid combustion. Herman Krier and Harold Kerzner (AIAA J) 1691
Calculation of shock wave relaxation zones including dissipative transport phenomena. D. Weihs and B. Gal-Or (AIAA J, TN) 108
Atomic recombination rate determination through heat-transfer measurement. Chul Park, Lewis A. Anderson, and Robert E. Sheldahl (AIAA J, TN) 372
Ion intensity measurement in a plasma reaction channel. J. H. Mullen, J. M. Madson, and L. N. Medgyesi-Mitschang (AIAA J, TN) 1031
Performance of turbulent chemical laser. Paul M. Chung (AIAA J, TN) 1040
Assessment of chemical nonequilibrium for massively ablating graphite. Kenneth A. Lincoln, John T. Howe, and Tsong-Mou Liu (AIAA J, TN) 1198
Verification of a simple relationship for shock-wave reflection of a relaxing gas. Ronald K. Hanson and William Flower (AIAA J, TN) 1777

Shock Waves and Detonations

Review of current sonic boom studies. Edward J. Kane (JA) 395
Plastic bonded, thermally stable explosive for an Apollo experiment. E. E. Kilmer (JSR) 463
Motion of solid D_2 under laser irradiation. Ralph S. Cooper (AIAA J) 831
Laser produced hemispherical shock waves. Barrett S. Robb and Donald L. Turcotte (AIAA J) 836
Structure of shock waves in cylindrical ducts. P. J. Waltrup and F. S. Billig (AIAA J) 1404
Vibrational relaxation of carbon monoxide studies by two-wavelength infrared emission. Charles Chackerian Jr. (AIAA J) 1706
Calculation of shock wave relaxation zones including dissipative transport phenomena. D. Weihs and B. Gal-Or (AIAA J, TN) 108
Application of hot wires to measurements in freely expanding jets. Michael Richard Davis (AIAA J, TN) 113
Unsteady flow processes in a rapidly filling plenum. Jacob B. Romero and Frederic A. Gruenich (AIAA J, TN) 368
Locus of a one-dimensional shock front caused by a disturbance moving on a circle. F. Meyer (AIAA J, TN) 408
Fuel tank wall response to hydraulic ram during the shock phase. R. E. Ball, H. L. Power, and A. E. Fuhs (JA, EN) 571
Prediction of precombustion wall pressure distributions in scramjet engines. P. J. Waltrup and F. S. Billig (JSR, EN) 620
Streamline curvature and velocity gradient behind curved shocks. Prabhakara P. Rao (AIAA J, TN) 1352
Diffraction and reflection of shocks from corners. M. G. Chopra (AIAA J, TN) 1452
Verification of a simple relationship for shock-wave reflection in a relaxing gas. Ronald K. Hanson and William Flower (AIAA J, TN) 1777
Comment on "Laminar thermal boundary layers on continuous surfaces." H. E. Eickhoff (AIAA J, TC) 895
——Reply by authors to H. E. Eickhoff. C. A. Rhodes and H. Kaminer Jr. (AIAA J, TC) 895

Subsonic and Transonic Flow

Shock waves and drag in the numerical calculation of compressible, irrotational transonic flow. Joseph L. Steger and Barrett S. Baldwin (AIAA J, SYN) 903
Inverse method of designing two-dimensional transonic airfoil sections. Junzo Sato (AIAA J) 58
A method for transonic wind-tunnel corrections. Antonio Ferri and Paolo Baronti (AIAA J) 63
Surface curvature and lateral pressure gradient effects on laminar boundary-layer separation. G. R. Inger and B. Dutt (JA) 200
Unsteady thin-airfoil theory for subsonic flow. Colin Osborne (AIAA J) 205
——Closed-form lift and moment for Osborne's unsteady thin-airfoil theory. Nelson H. Kemp (AIAA J, TC) 1358
Transonic nozzle flow with nonuniform gas properties. Stanton Boraas (AIAA J) 210
Correlation of Magnus force data for slender spinning cylinders. James D. Iversen (JSR) 268
Relaxation techniques for three-dimensional transonic flow about wings.

F. R. Bailey and J. L. Steger (AIAA J) 318
Compressible unsteady interactions between blade rows. Colin Osborne (AIAA J) 340
——Compressible unsteady interactions between blade rows. Colin Osborne (AIAA J, ERR) 1360
Analysis of normal shock noise measurements on nose-cylinder bodies. J. Peter Reding and Rolf A. Guenther (JSR) 429
Viking pitch damping derivatives as influenced by support interference and test techniques. Sy Steinberg, Bob L. Uselton, and Paul M. Siemers III (JSR) 443
Calculation of nozzle flows using Padé fractions. Andrew H. Van Tuyl (AIAA J) 537
An experimental investigation of turbulent transonic viscous-inviscid interactions. Irwin E. Alber, John W. Bacon, Bruce S. Masson, and Donald J. Collins (AIAA J) 620
A finite-difference method for transonic airfoil design. Joseph L. Steger and John M. Klineberg (AIAA J) 628
Exact method of designing airfoils with given velocity distribution in incompressible flow. T. Strand (JA) 651
Discrete vortex method of two-dimensional jet flaps. Junzo Sato (AIAA J) 968
Study of vortex rings using a laser Doppler velocimeter. John P. Sullivan, Sheila E. Widnall, and Shaoul Ezekiel (AIAA J) 1384
Variational approach to the lifting surface problem. S. F. Shen and Stevens T. K. Chan (AIAA J) 1390
A preliminary analytical and experimental investigation of helicopter rotor boundary layers. Dwight A. Blaser and Henry R. Velkoff (AIAA J) 1660
Aircraft wing-tip vortex modification. Philip O. Jarvinen (JA, EN) 63
An improved kernel function formulation for unsteady subsonic flow. Frederick D. Eichenbaum (AIAA J, TN) 123
Toward simpler prediction of transonic airfoil lift, drag, and moment. Frederick O. Smetana and Donald P. Knepper (JA, EN) 124
Study of slat-airfoil combinations using computer graphics. R. H. Liebeck and D. N. Smyth (JA, EN) 254
High Reynolds number experimental data for forebody axial force. John William Davis and Robert F. Graham (AIAA J, TN) 379
Vortex-lift prediction for complex wing planforms. R. G. Bradley, C. W. Smith, and I. C. Bhateley (JA, EN) 379
Pumping capacity of venturi exhausts. Jacques A. F. Hill and Philip O. Jarvinen (JA, EN) 444
Decay of anisotropic turbulence. Henry J. Tucker and S. Firasat Ali (AIAA J, TN) 546
Prediction of airfoil shock location in transonic flow. Victor E. Studwell and Jain-Ming Wu (JA, EN) 636
A criterion for assessing wind-tunnel wall interference at Mach 1. Theodore R. Goodman (JA, EN) 695
Striated nozzle flow with small radius of curvature ratio throats. D. J. Norton and R. E. White (JSR, EN) 747
Transonic flow past lifting wings. Helge Nørstrud (AIAA J, TN) 754
Transonic flow about lifting configurations. R. W. Barnwell (AIAA J, TN) 764
Inviscid wake-airfoil interaction on multielement high lift systems. Alfred Moser and Carl A. Shollenberger (JA, EN) 765
Equivalence rule and transonic flow theory involving lift. H. K. Cheng and M. M. Hafez (AIAA J, TN) 1210
Transonic flow past lifting airfoils. N. R. Subramanian and M. Balakrishnan (AIAA J, TN) 1766
Comment on "A compressibility correction for internal flow solutions." M. V. Herbert (JA, TC) 574
Comments on "Low-area ratio, thrust-augmenting ejectors." Philip A. Graham (JA, TC) 701
——Reply to Comment by Philip A. Graham. Paul M. Bevilaqua (JA, TC) 703
——Comment on the Comment by Philip A. Graham and Reply by Paul M. Bevilaqua. William K. Greathouse (JA, TC) 704
Closed-form lift and moment for Osborne's unsteady thin-airfoil theory. Nelson H. Kemp (AIAA J, TC) 1358

Supersonic and Hypersonic Flow

Method for increasing wind tunnel Mach number for large-scale inlet testing. Eldon A. Latham and Norman E. Sorensen (JA, SYN) 577
Remote sensing of CF_4 number density in a hypersonic flow using Raman scattering. Mervin E. Hillard Jr., M. Lawrence Emory, and A. R. Bandy (AIAA J, SYN) 775
Interaction of a laminar hypersonic boundary layer with a corner expansion wave. W. W. Koziak and P. A. Sullivan (AIAA J, SYN) 1057
Experimental investigation of hypersonic buzz on a delta configuration. Robert L. Goldman and Henry J. Obremski (AIAA J, SYN) 1361
Shock impingement caused by boundary-layer separation ahead of blunt fins. Louis G. Kaufman II, Robert H. Korkegi, and Leo C. Morton (AIAA J, SYN) 1363
Boundary layer electron profiles for high-altitude entry of a blunt slender body. J. S. Evans, C. J. Schexnayder Jr., and Paul W. Huber (AIAA J, SYN) 1371
Unsteady aerodynamics of nonplanar wings and wing-tail configurations of elastic flight vehicles in supersonic flight. Jack Morito Ii and William S. Rowe (JA) 19
Hypersonic flows in large-scale inlet models. William R. Seebaugh (JA) 38
Second- and third-order noncentered difference schemes for nonlinear hyperbolic equations. R. F. Warming, Paul Kutler, and Harvard Lomax (AIAA J) 189
Computation of space shuttle flowfields using noncentered finite-difference schemes. Paul Kutler, R. F. Warming, and Harvard Lomax (AIAA J) 196
Electron beam visualization in hypersonic airflows. H. F. Lee and S. L. Petrie (JA) 239
Correlation of Magnus force data for slender spinning cylinders. James D. Iversen (JSR) 268
Newtonian aerodynamic forces from Poisson's equation. Jack Pike (AIAA J) 499
Initial conditions for the hypersonic-shock/boundary-layer interaction problem. M. J. Werle, D. L. Dwoyer, and W. L. Hankey (AIAA J) 525
Experimental determination of the aeroacoustic environment about a slender cone. A. Martellucci, L. Chaump, D. Rogers, and D. Smith (AIAA J) 635
Multishocked, three-dimensional supersonic flowfields with real gas effects. P. Kutler, W. A. Reinhardt, and R. F. Warming (AIAA J) 657
Microwave and electrostatic probe measurements on a blunt re-entry vehicle. Dallas T. Hayes and Walter Rotman (AIAA J) 675
Fin induced laminar interactions on sharp and spherically blunted cones. T. Taz Bramlette, Richard R. Smith, and Neil J. Sliski (JSR) 696
Shuttle orbiter re-entry flowfields at high angle of attack. William C. Rochelle, Barney B. Roberts, Leo d'Attorre, and M. A. Bilyk (JSR) 783
Analysis of turbulent skin friction in thick axisymmetric boundary layers. F. M. White, R. C. Lessmann, and G. H. Christoph (AIAA J) 821
A surface flow approach for predicting crosshatch patterns. R. M. Grabow and C. O. White (AIAA J) 841
Supersonic flow aerodynamic windows for high-power lasers. E. M. Parmentier and R. A. Greenberg (AIAA J) 943
Refinements in high-Reynolds number shock-tunnel technology. Roy Scott Hickman and James B. Kyser (AIAA J) 961
Hypersonic wake aerodynamics at high Reynolds numbers. Michael L. Finson (AIAA J) 1137
Investigation of the expansion side of a delta wing at supersonic speed. W. J. Bannink and C. Nebbeling (AIAA J) 1151
Effects of blunting and cooling on separation of laminar supersonic flow. J. Don Gray and R. W. Rhudy (AIAA J) 1296
Approximation for hypersonic flow past an inclined cone. Robert T. Doty and Maurice L. Rasmussen (AIAA J) 1310
Time-split finite-volume method for three-dimensional blunt-body flow. Arthur W. Rizzi and Mamoru Inouye (AIAA J) 1478
Effect of disturbances on the heat transfer of a laminar axisymmetric boundary layer. R. D. Small and J. Rom (AIAA J) 1503
Mean free path of emitted molecules and correlation of sphere drag data. David L. Whitfield (AIAA J) 1666
Experimental study of supersonic laminar base flow with and without suction. Antoni K. Jakubowski and Clark H. Lewis (AIAA J) 1670
Corner pressures and fillet shock locations for symmetrical corners by an approximate method. Ralph D. Watson (JSR, EN) 90
Dusty hypersonic wedge flow. John Peddieson Jr. and Chung-Hsein Lyu (AIAA J, TN) 110
Approximate method for calculating heat transfer to yawed cylinders in laminar flow. Shoichi Sayano and George F. Greenwald (JSR, EN) 157
Heat-transfer measurements for cylindrical configurations in hypersonic streams. John J. Bertin, J. Parker Lamb, Jeffrey L. Zickler, and Winston D. Goodrich (JSR, EN) 217
Dynamic instability caused by forebody blowing. Lars E. Ericsson and Rolf A. Guenther (AIAA J, TN) 231
Influence of moderate wall cooling on cone transition at $M_e = 13.7$ in helium. Michael C. Fischer (JSR, EN) 282
Unsteady flow processes in a rapidly filling plenum. Jacob B. Romero and Frederic A. Gruenich (AIAA J, TN) 368
Density inhomogeneity in a laser cavity due to energy release. Allen E. Fuhs (AIAA J, TN) 374
A modified wall wake velocity profile for turbulent compressible boundary layers. Chen-Chih Sun and Morris E. Childs (JA, EN) 381
Boundary-layer distortion on a spinning cone. Walter B. Sturek (AIAA J, TN) 395
Locus of a one-dimensional shock front caused by a disturbance moving on a circle. F. Meyer (AIAA J, TN) 408
Base pressures in flow expansions by hydraulic analogy. H. S. Ningappa and S. Narasimhan (AIAA J, TN) 727
Entropy layer effects in constant pressure hypersonic boundary layers. P. A. Sullivan and W. W. Koziak (AIAA J, TN) 730
Supersonic flow about slab delta wings and wing-body configurations. Chong-Wei Chu (JSR, EN) 741
Experimental study of a high life re-entry vehicle configuration. Roel Houwink and Bryan E. Richards (AIAA J, TN) 749
Sensitivity of boundary-layer transition to surface irregularities for space shuttle applications. S. R. Pate and R. J. Eaves Jr. (JSR, EN) 813

Geometry of relaxing gas flows. Rama Shankar (AIAA J, TN) 1214
Improvement to Klineberg's method for the calculation of viscous-inviscid interactions in supersonic flow. Bernard G. Gautier and Jean J. Ginoux (AIAA J, TN) 1323
Application of dual hologram interferometry to wind-tunnel testing. Roger J. Radley Jr. and Albert G. Havener (AIAA J, TN) 1332
Plume boundary jump of an underexpanded jet exhausting counter to a freestream. D. L. Whitfield, H. K. Smithson, and L. L. Price (AIAA J, TN) 1336
Exact steady-state analogy of transient gas compression by coalescing waves. L. L. Lengyel (AIAA J, TN) 1347
Branching solutions for supersonic interacting boundary layers. W. L. Hankey, D. L. Dwoyer, and M. J. Werle (AIAA J, TN) 1349
Streamline curvature and velocity gradient behind curved shocks. Prabhakara P. Rao (AIAA J, TN) 1352
Reattachment of a separated boundary layer to a convex surface. James L. Amick and Tariq Masoud (AIAA J, TN) 1426
Methods for calculating nonlinear flows with attached shock waves over conical wings. W. H. Hui (AIAA J, TN) 1443
Diffraction and reflection of shocks from corners. M. G. Chopra (AIAA J, TN) 1452
Three-dimensional separation for interaction of shock waves with turbulent boundary layers. Theodore J. Goldberg (AIAA J, TN) 1573
An attempted improvement of the method of integral relations for a blunt body in a supersonic flow. B. L. Hunt (AIAA J, TN) 1575
A simple correlation for incipient turbulent boundary-layer separation due to a skewed shock wave. R. H. Korkegi (AIAA J, TN) 1578
A graphical method for the investigation of shock interference phenomena. Davis H. Crawford (AIAA J, TN) 1590
Hot-wire coil probe for high-speed flows. Leonard M. Weinstein (AIAA J, TN) 1772
Van Driest generalization applied to turbulent skin friction and velocity profiles measured on the wall of a Mach 7.4 wind tunnel. Earl R. Keener and Edward J. Hopkins (AIAA J, TN) 1784
Spherically-symmetric supersonic source flow: A new use for the Prandtl-Meyer function. Walter F. Reddall III (AIAA J, TN) 1787
Numerical method for hypersonic internal flow over blunt leading edges and two blunt bodies. Norbert D'Souza, Sannu Molder, and Gino Moretti (AIAA J, ERR) 256
Role of the anelastic behavior of the ablation material on cross-hatching. Hans W. Stock (AIAA J, ERR) 1056

Viscous Nonboundary-Layer Flows

Magnus effect on spinning bodies of revolution. H. L. Power and J. D. Iversen (AIAA J, SYN) 417
Study of the effects of pressure-induced viscosity changes on the fluid flow characteristics in a circular tube. Robert L. Davis and Robert C. Weber (AIAA J, SYN) 905
Decay of far-flowfield in trailing vortices. B. S. Baldwin, N. A. Chigier, and Y. S. Sheaffer (AIAA J, SYN) 1601
Theoretical and measured electron-density distributions at high altitudes. Sang-Wook Kang, W. Linwood Jones, and Michael G. Dunn (AIAA J) 141
Flow properties of submerged heated effluents in a waterway. James F. Campbell and Joseph A. Schetz (AIAA J) 223
Analytical and experimental investigations of laminar mixing of confined heterogeneous jets. Gideon Shavit and Zalman Lavan (AIAA J) 352
Rapid scanning, three-dimensional hot-wire anemometer surveys of wing-tip vortices. V. R. Corsiglia, R. G. Schwind, and N. A. Chigier (JA) 752
Hypersonic wake aerodynamics at high Reynolds numbers. Michael L. Finson (AIAA J) 1137
Swirling flows in streamtubes of variable cross section. Hartmut H. Bossel (AIAA J) 1161
Transformation of the hypersonic compressible Navier-Stokes equations. David F. Rogers (AIAA J, TN) 119
Viscous shock layer flow in the windward plane of cones at angle of attack. Roger R. Eaton and Peter C. Kaestner (AIAA J, TN) 1337
Unsteady flow of power-law fluids. I. S. Habib and T. Y. Na (AIAA J, TN) 1588

Wave Motion and Sloshing

Cavity radius vs energy dissipation rate in liquid-filled, precessing, spherical cavities. James P. Vanyo (AIAA J, SYN) 261
Experimental study of the effects of low Bond number sloshing on thermal stratification. Robert J. Krane and Leroy A. Holmes (AIAA J, SYN) 1219
Liquid jet injection into a supersonic flow. Edward A. Kush Jr. and Joseph A. Schetz (AIAA J, SYN) 1223
Drop size distribution resulting from liquid jet injection across a supersonic stream. D. W. Harvey (AIAA J) 826
Exact hydroelastic solution for an ideal fluid in a hemispherical container. Robert N. Coppolino (JSR, EN) 612
Comment on "Discrete element idealization of an incompressible liquid for vibration analysis" and "Discrete element structural theory of fluids." Robert D. Cook (AIAA J, TC) 766

INTERDISCIPLINARY TOPICS

Aerospace Management

When do we cooperate and when do we compete? Kenneth W. Gatland (A/A, July) 12
Government spending and innovation. Murray L. Weidenbaum (A/A, November) 32
U. S. aerospace industry at the crossroads. Robert S. Attiyeh, Eric G. Friberg, and Richard E. Cohen (A/A, November) 44
Space systems summaries: Orbiting astronomical observatory programs. (A/A, December) 75

Aerospace Technology Utilization

NASTRAN: A preliminary discussion of user impacts. Joseph M. Carlson and Judson O. Harrison III (JA, SYN) 65
NASA contributions to fluidic systems. Terry M. Weathers (JSR, SYN) 417
Parameters of technological growth. Chauncey Starr and Richard Rudman (A/A, June) 20
Planetary quarantine goes to work in the hospital. Michael D. Wardle, Alexander S. Irons, and Richard H. Green (A/A, June) 32
Energy: Lifeblood of our cities. Jerry Grey (A/A, December) 52
A view of air traffic control in future terminal areas. W. E. Willhelm and J. W. Schmidt (JA) 366

Atmospheric, Space, and Oceanographic Sciences

A laboratory simulation of the ionospheric plasma. Daniel R. Pigache (AIAA J, SYN) 129
Observability of high-altitude atmospheric scattering layers. Derek M. Cunnold (JSR, SYN) 419
Application of Fabry-Perot interferometry to detection of Raman scattering from atmospheric pollutants. William Hayden Smith and J. J. Barrett (AIAA J, SYN) 589
Remote measurement of carbon monoxide by a gas filter correlation instrument. L. L. Acton, M. Griggs, G. D. Hall, C. B. Ludwig, W. Malkmus, W. D. Hesketh, and H. Reichle (AIAA J, SYN) 899
SSTs, Ozone, and skin cancer. Francis S. Johnson (A/A, July) 16
Looking at the solar system in the far-ultraviolet. Robert R. Meier (A/A, October) 18
Variational solution to the radiative equation by the use of a step function II. Extension to nonlinear case by iteration method. Kenneth K. Yoshikawa (AIAA J) 19
Density stratified, viscous flow past a flat plate. Joseph A. Schetz, Stanley Favin, and Louis W. Ehrlich (JH) 22
Optical space astronomy and goals of the large space telescope. C. R. O'Dell (A/A, April) 22
A great comet coming . . . KOHOUTEK. Stephen P. Maran and Robert W. Hobbs (A/A, October) 48
The opening message from an extraterrestrial probe. Ronald N. Bracewell (A/A, May) 58
Aerosol monitoring by satellite horizon scanning. C. R. Gray, H. L. Malchow, D. C. Merritt, and R. E. Var (JSR) 71
Raman scattering from pollutant gases and air-water interfaces. Ronald L. Schwiesow (AIAA J) 87
Low-altitude atmospheric turbulence around an airport. Stanley D. Cass, James R. Scoggins, and Howard L. Chevalier (JA) 157
Mountain waves and CAT encountered by the XB-70 in the stratosphere. James R. Scoggins and Thomas P. Incrocci (JA) 172
The remote measurement of nitric oxide from an airplane or space platform. I. M. Pikus, H. W. Goldstein, and T. R. Riethof (JSR) 190
Exhaust cloud rise and growth for Apollo Saturn engines. Michael Susko and John W. Kaufman (JSR) 341
Measurement of emissions from jet engines in altitude test cells. J. Lloyd Grissom (JA) 475
Ballistic range investigation of sonic-boom overpressures in water. Peter F. Intrieri and Gerald N. Malcolm (AIAA J) 510
Observations of atmospheric effects on vortex wake behavior. Ivar Tombach (JA) 641
Abundance of NH_3 on Jupiter inferred from microwave radiometry data. Robert J. Richardson (JSR) 647
Ozone, aerosols, and solar radiation in the stratosphere. Elmar R. Reiter (JA) 710
Dispersion and subsidence of the exhaust of a supersonic transport in the stratosphere. Thomas J. Overcamp and James A. Fay (JA) 720
Uniform representation of the gravitational potential and its derivatives. Samuel Pines (AIAA J) 1508
Turbulence variations during the high altitude clear air turbulence (HICAT) program. David E. Waco and Edward V. Ashburn (JA, EN) 56
Lidar techniques for pollution studies. M. P. McCormick and W. H. Fuller Jr. (AIAA J, TN) 244
Remote sensing of atmospheric turbidity variation by satellite. Alden McLellan (JSR, EN) 743
Eigenvalues and eigenvectors for solutions to the radiative transport equation. J. A. Roux, D. C. Todd, and A. M. Smith (AIAA J, ERR) 767

Checkout Systems

Airborne-science techniques aid shuttle planning. Donald R. Mulholland and Carr B. Neel (A/A, May) 24

Computer Technology and Computer Simulation Techniques

NASTRAN: A preliminary discussion of user impacts. Joseph M. Carlson and Judson O. Harrison III (JA, SYN) 65
Man-computer graphics in preliminary ship design. Robert S. Johnson, Arthur L. Fuller, James A. Claffey, Fritz R. Bjorklund, and Bernard M. Thompson (JH) 11
Centralized data banks—where public technology can go wrong. Francis W. Sargent (A/A, November) 18
The future shock of information networks. Eugene Levin (A/A, November) 52
DAIS: A major crossroad in the development of avionic systems. Bernard List (A/A, January) 55
An analysis of desired maneuvering characteristics of large Arctic SEV'S. E. N. Brooks Jr. and W. Zeitfuss Jr. (JH) 112
A general purpose computer program for the dynamic simulation of vehicle-guideway interactions. George Dailey, William C. Caywood, and James S. O'Connor (AIAA J) 278
An interactive real time simulation for scheduling and monitoring of STOL aircraft in the terminal area. John D. McLean and Leonard Tobias (JA) 372
Automated structural synthesis using a reduced number of design coordinates. R. M. Pickett Jr., M. F. Rubinstein, and R. B. Nelson (AIAA J) 489
Advanced fighter controls flight simulator for all-systems compatibility testing. David R. Rolston, Stephen M. Rayhawk, and Benny B. Barnes (JA) 602
Direct statistical analysis of nonlinear systems: CADET. A. Gelb and R. S. Warren (AIAA J) 689
Computer aided design-drafting (CADD)—Engineering/manufacturing tool. C. H. English (JA) 747
Identification of parameters by the continuation method. Eliahu Wasserstrom (AIAA J) 1097
Uniform representation of the gravitational potential and its derivatives. Samuel Pines (AIAA J) 1508
Digital tuning as an exploratory tool in the modal analysis of randomly-loaded vibrating structures. D. R. Cruise and R. G. Christiansen (AIAA J) 1539
Remote sensing of atmospheric turbidity variation by satellite. Alden McLellan (JSR, EN) 743
Elimination of square roots from ballistics equations. Ralph M. Toms (JSR, EN) 815
Comment on Moretti's method. Karl M. Förster (AIAA J, TC) 576

Electric Power Generation Research

Our R&D challenge for national energy policy. Raymond L. Bisplinghoff (A/A, August) 18
Prospecting for energy. Jerry Grey (A/A, August) 24
Laser-initiated fusion—Key experiments looming. Keith Boyer (A/A, January) 28
Harnessing solar energy: The potential. William R. Cherry (A/A, August) 30
Hydrogen transportable storable energy medium. Derek P. Gregory (A/A, August) 38
Power from laser-initiated nuclear fusion. Keith Boyer (A/A, August) 44
Nuclear fusion by magnetic confinement. R. F. Post (A/A, August) 50
Energy: Lifeblood of our cities. Jerry Grey (A/A, December) 52
Solar power via satellite. Peter E. Glaser (A/A, August) 60
Electrode and gasdynamic effects in a large nonequilibrium MHD generator. B. Zauderer and E. Tate (AIAA J) 149
Investigation of the discharge structure in a noble gas alkali MHD generator plasma: Part I. G. Brederlow, K. J. Witte, and H. Zinko (AIAA J) 1065
Investigation of the discharge structure in a rare gas alkali MHD generator plasma: Part II. G. Brederlow and K. J. Witte (AIAA J) 1072
The numerical prediction of streamer growth in MHD ducts. R. J. Uncles (AIAA J, TN) 1436
Shock tube flow passing through a section of a linear MHD generator. J. J. Rosciszewski and T. T. Yeh (AIAA J, TN) 1756

Lasers

Interferometric density measurements in the arc of a pulsed plasma thruster. K. I. Thomassen and D. Tong (JSR, SYN) 163
Laser-heated hypersonic wind tunnel. Victor R. Buonadonna, Charles J. Knight, and A. Hertzberg (AIAA J, SYN) 1457
Laser-initiated fusion—Key experiments looming. Keith Boyer (A/A, January) 28
Power from laser-initiated nuclear fusion. Keith Boyer (A/A, August) 44
Raman scattering from pollutant gases and air-water interfaces. Ronald L. Schwiesow (AIAA J) 87
Simplified model of CW diffusion-type chemical laser. H. Mirels, R. Hofland, and W. S. King (AIAA J) 156
Motion of solid D_2 under laser irradiation. Ralph S. Cooper (AIAA J) 831
Laser produced hemispherical shock waves. Barrett S. Robb and Donald L. Turcotte (AIAA J) 836
Supersonic flow aerodynamic windows for high-power lasers. E. M. Parmentier and R. A. Greenberg (AIAA J) 943
Experimental CW chemical laser studies. D. J. Spencer and R. L. Varwig (AIAA J) 1000
Lidar techniques for pollution studies. M. P. McCormick and W. H. Fuller Jr. (AIAA J, TN) 244
Unsteady flow processes in a rapidly filling plenum. Jacob B. Romero and Frederic A. Gruenich (AIAA J, TN) 368
Density inhomogeneity in a laser cavity due to energy release. Allen E. Fuhs (AIAA J, TN) 374
Simultaneous comparison of turbulent gas fluctuations by laser Doppler and hot wire. William C. Cliff, Charles E. Fuller III, and Virgil A. Sandborn (AIAA J, TN) 748
Insensitivity of single particle time domain measurements to laser velocimeter "Doppler ambiguity." Dennis A. Johnson (AIAA J, TN) 890
Application of dual hologram interferometry to wind-tunnel testing. Roger J. Radley Jr. and Albert G. Havener (AIAA J, TN) 1332
Exact steady-state analogy of transient gas compression by coalescing waves. L. L. Lengyel (AIAA J, TN) 1347

Law, History, Policy, and Sociology

New space transportation systems. J. Preston Layton and Jerry Grey (A/A, February) 12
When do we cooperate and when do we compete? Kenneth W. Gatland (A/A, July) 12
Parameters of technological growth. Chauncey Starr and Richard Rudman (A/A, June) 20
Resources and pollution—Time (Past?) for engineers to act. Aaron J. Teller (A/A, June) 28
Planetary quarantine goes to work in the hospital. Michael D. Wardle, Alexander S. Irons, and Richard H. Green (A/A, June) 32
Government spending and innovation. Murray L. Weidenbaum (A/A, November) 32
NSF's experimental R&D incentives program. C. Branson Smith (A/A, May) 54

Navigation, Control, and Guidance Theory

Some effects of bias errors in redundant flight control systems. Robert F. Stengel (JA) 150
Minimum fuel rocket maneuvers in horizontal flight. N. X. Vinh (AIAA J) 165
An optimal control approach to terminal area air traffic control. David K. Schmidt and Robert L. Swaim (JA) 181
Inclusion of rotor dynamics in controller design for helicopters. W. E. Hall Jr. and A. E. Bryson Jr. (JA) 200
Computerized optimal control system design for boost vehicles. Wolfgang Trautwein and John M. Livingston (JSR) 227
Minimax failure detection and identification in redundant gyro and accelerometer systems. James E. Potter and James C. Deckert (JSR) 236
Star scanner attitude determination for the OSO-7 spacecraft. D. L. Mackison, R. L. Gutshall, and F. Volpe (JSR) 262
Enlarging the region of convergence of Kalman filters employing range measurements. William S. Widnall (AIAA J) 283
Quasi-linearization technique for estimating aircraft states from flight data. Rodney C. Wingrove (JA) 303
Optimal evasive tactics against a proportional navigation missile with time delay. Gary L. Slater and William R. Wells (JSR) 309
A view of air traffic control in future terminal areas. W. E. Willhelm and J. W. Schmidt (JA) 366
An interactive real time simulation for scheduling and monitoring of STOL aircraft in the terminal area. John D. McLean and Leonard Tobias (JA) 372
Strapdown inertial system alignment using statistical filters: A simplified formulation. John J. Deyst Jr. and Arthur A. Sutherland Jr. (AIAA J) 452
An omnidirectional gliding ribbon parachute and control system. William B. Pepper and John R. Biesterveld (JA) 678
Minimax design of Kalman-like filters in the presence of large-parameter uncertainties. G. E. Hutchinson, J. A. D'Appolito, and P. L. Bongiovanni (AIAA J) 694
Integrals of the motion for optimal trajectories in atmospheric flight. Nguyen X. Vinh (AIAA J) 700
Application of sequential filtering to estimation of the interplanetary orbit of Mariner 9. Kenneth H. Rourke and James F. Jordan (JSR) 773
Propellant requirements for midcourse velocity corrections. B. G. Lee and R. J. Boain (JSR) 779
Rotations about nonorthogonal axes. Paul B. Davenport (AIAA J) 853
Differential turns. Henry J. Kelley and Leon Lefton (AIAA J) 858
Error analysis of Euler angle transformations. Richard L. Pio (AIAA J) 871
Roll-modulated lifting entry optimization. Henry J. Kelley and Henry C. Sullivan (AIAA J) 913
Nonlinear and adaptive estimation in re-entry. Andrew H. Jazwinski (AIAA J) 922

Reachable sets analysis—An efficient technique for performing missile/sensor tradeoff studies. David M. Salmon and Walter Heine (AIAA J) 927
An application of Kalman techniques to aircraft and missile radar tracking. G. T. Aldrich and W. B. Krabill (AIAA J) 932
Neighboring extremals for optimal control problems. C. E. Hymas, R. K. Cavin III, and D. Colunga (AIAA J) 1101
Second-order optimality conditions for variable end time terminal control problems. Lincoln J. Wood and Arthur E. Bryson Jr. (AIAA J) 1241
Fast triangular formulation of the square root filter. Neal A. Carlson (AIAA J) 1259
Real-time optimal guidance for orbital maneuvering. Audrey O. Cohen and Kenneth R. Brown (AIAA J) 1266
N-burn optimal analytic trajectories. Donald J. Jezewski (AIAA J) 1373
Phase lead S-plane compensation. Itzhack Y. Bar-Itzhack (AIAA J) 1521
Effects of resonant tesseral gravity coefficients on Viking-type orbits. Harold R. Compton, James R. Schiess, and William J. Breedlove Jr. (AIAA J) 1743
Multipoint guidance—An efficient implementation of predictive guidance. David M. Salmon (AIAA J) 1749
Use of accelerometers to determine tilts and displacements. Michael Reichle and Hugh Bradner (AIAA J, TN) 735
On the fuel optimality of cruise. Jason L. Speyer (JA, EN) 763
Elimination of square roots from ballistics equations. Ralph M. Toms (JSR, EN) 815
Riccati transformation for gradient optimization techniques. W. E. Williamson and T. J. Eller (AIAA J, TN) 881
Application of nonlinear estimators to hereditary systems. J. R. Schiess, V. R. Roland, and W. R. Wells (AIAA J, TN) 1414
Integrals for optimal flight over a spherical Earth. H. Gardner Moyer (AIAA J, TN) 1441
A universal three-angle basis for rotational kinematic analysis, simulation and control. James Nohl Churchyard (JSR, ERR) 480
Optimal desaturation of momentum exchange control systems. C. D. Johnson (AIAA J, ERR) 768

Reliability, Quality Control, and Maintainability

Needed: Rational testing of aerospace vehicles. Anthony M. Smith and Thomas D. Matteson (A/A, August) 69
Fracture mechanics applications in materials selection, fabrication sequencing and inspection. William E. Krupp and David W. Hoeppner (JA) 682

Research Facilities and Instrumentation

Pressure and current effects on the thermal efficiency of an MPD arc used as a plasma source. Thomas J. Pivirotto (AIAA J, SYN) 12
A laboratory simulation of the ionospheric plasma. Daniel R. Pigache (AIAA J, SYN) 129
Starting process in the nozzle of a nonreflected shock tunnel. R. J. Stalker and N. R. Mudford (AIAA J, SYN) 265
Remote sensing of CF_4 number density in a hypersonic flow using Raman scattering. Mervin E. Hillard Jr., M. Lawrence Emory, and A. R. Bandy (AIAA J, SYN) 775
Linear and rotational quartz fiber accelerometers for geophysical and inertial use. B. Bartholomew, B. Block, and J. Dratler Jr. (AIAA J, SYN) 1227
Dual-hologram interferometry: A new technique for wind-tunnel testing. (A/A, December) 27
A facility for long-term ion thruster system testing. Howard F. McKinney and Richard A. Dutton (JSR) 42
A method for transonic wind-tunnel corrections. Antonio Ferri and Paolo Baronti (AIAA J) 63
Electron beam visualization in hypersonic airflows. H. F. Lee and S. L. Petrie (JA) 239
Design and development of the United Aircraft Research Laboratories Acoustic Research Tunnel. Robert W. Paterson, Paul G. Vogt, and William M. Foley (JA) 427
Transonic flow quality improvements in a blowdown wind tunnel. James M. Cooksey and John W. Arnold (JA) 554
High-Reynolds-number cryogenic wind tunnel. Michael J. Goodyer and Robert A. Kilgore (AIAA J) 613
Rapid scanning, three-dimensional hot-wire anemometer surveys of wing-tip vortices. V. R. Corsiglia, R. G. Schwind, and N. A. Chigier (JA) 752
Thermal and momentum diffusivity measurements in a turbulent stratified flow. Gordon Merritt and George Rudinger (AIAA J) 1465
Visual display of the spatial distribution of colloidal particle beams. J. D. Hepburn, F. S. Chute, and F. E. Vermeulen (AIAA J, TN) 370
High Reynolds number experimental data for forebody axial force. John William Davis and Robert F. Graham (AIAA J, TN) 379
Spacecraft applications of high-temperature electrically conducting ceramics. Carl R. Halbach, Russell J. Page, and Owen J. McCaughey (JSR, EN) 415
Blockage corrections for large bluff bodies near a wall in a closed jet wind tunnel. T. N. Krishnaswamy, G. N. V. Rao, and K. R. Reddy (JA, EN) 634
Insensitivity of single particle time domain measurements to laser velocimeter "Doppler ambiguity." Dennis A. Johnson (AIAA J, TN) 890
Heat flux probe as a flowfield diagnostic. Irwin E. Vas (AIAA J, TN) 1576
Comments on "Theory of ion boundary layer." A. G. Hammitt (AIAA J, TC) 1597
——Reply by authors to A. G. Hammitt. P. C. T. deBoer and R. A. Johnson (AIAA J, TC) 1598

Safety

Modeling of aircraft position errors with independent surveillance. David E. Stepner (AIAA J) 1273
Blockage corrections for large bluff bodies near a wall in a closed jet wind tunnel. T. N. Krishnaswamy, G. N. V. Rao, and K. R. Reddy (JA, EN) 634

LAUNCH VEHICLE AND MISSILE (LV/M) TECHNOLOGY

LV/M Aerodynamic Heating

Approximate method for calculating heat transfer to yawed cylinders in laminar flow. Shoichi Sayano and George F. Greenwald (JSR, EN) 157
Flight test correlation technique for turbulent base heat transfer with low ablation. Bruce M. Bulmer (JSR, EN) 222
Mach number and Reynolds number effect on orbiter/tank interference heating. Theodore R. Creel Jr. (JSR, EN) 535
Turbulent heat transfer to a fin leading edge—Flight test results. E. Clark Lemmon and Hugh W. Coleman (AIAA J, TN) 571
Turbulent interference heating on several small fin configurations. Hugh W. Coleman and E. Clark Lemmon (JSR, EN) 820
New thermodynamic functions for the C_3 molecule. W. E. Pearson and W. C. Davy (AIAA J, TN) 1207
Transpiration cooling in three-dimensional laminar boundary-layer flow near a stagnation point. D. R. Jeng and Donald W. Williams (AIAA J, TN) 1560

LV/M Aerodynamics

Influence of boundary-layer stability on the Magnus effect. Ira D. Jacobson and J. B. Morton (AIAA J, SYN) 8
Magnus effect on spinning bodies of revolution. H. L. Power and J. D. Iversen (AIAA J, SYN) 417
Experimental correlation between the flow and Magnus characteristics of a spinning ogive-nose cylinder. James M. Martin and Charles W. Ingram (AIAA J, SYN) 901
Verification of ground test data by instrumented flight test of an artillery shell. Stanley D. Kahn, Vural Oskay and John Whiteside (JA) 143
Correlation of Magnus force data for slender spinning cylinders. James D. Iversen (JSR) 268
Newtonian aerodynamic forces from Poisson's equation. Jack Pike (AIAA J) 499
Occurrence and inhibition of large yawing moments during high-incidence flight of slender missile configurations. W. H. Clark, J. R. Peoples, and M. M. Briggs (JSR) 510
Calculation of turbulent boundary layers and wall jets over curved surfaces. F. A. Dvorak (AIAA J) 517
Static stability and drag studies for bodies of revolution in supersonic flow. Hans-Joachim Luckert (JSR) 703
Perturbation methods in atmospheric flight mechanics. Peter H. Zipfel (AIAA J) 1247
Estimation of aerodynamics for slender bodies alone and with lifting surfaces at α's from 0° to 90°. Leland H. Jorgensen (AIAA J, TN) 409
Effect of base mounted cylinders on a supersonic near wake. Richard A. Merz, Robert H. Page, and Christian E. G. Przirembel (JSR, EN) 470
Correlation of hypersonic zero-life drag data. John J. Rehder (JSR, EN) 622
Supersonic flow about slab delta wings and wing-body configurations. Chong-Wei Chu (JSR, EN) 741
A graphical method for the investigation of shock interference phenomena. Davis H. Crawford (AIAA J, TN) 1590
Comment on "Wind-tunnel Magnus testing of a canted fin or self-rotating configuration." F. J. Regan (AIAA J, TC) 413
——Reply by author to F. J. Regan. Anders S. Platou (AIAA J, TC) 415
Comment on "Simplification of the wing-body problem." Alexander H. Flax (JA, TC) 640
Comment on "Lift of wing-body combination." Alexander H. Flax (AIAA J, TC) 896
——Reply by author to A. H. Flax. H. T. Yang (AIAA J, TC) 896

LV/M Configurational Design

A graphical method for the investigation of shock interference phenomena. David H. Crawford (AIAA J, TN) 1590
Optimum stage weight distribution of multistage rockets. James A. Martin (AIAA J, TC) 255

LV/M Dynamics and Control

Full control of solid propellant rockets by secondary injection. I. Zeierman and Y. Manheimer-Timnat (JSR, SYN) 161
Computerized optimal control system design for boost vehicles. Wolfgang Trautwein and John M. Livingston (JSR) 227
Perturbation methods in atmospheric flight mechanics. Peter H. Zipfel (AIAA J) 1247
A universal three-angle basis for rotational kinematic analysis, simulation and control. James Nohl Churchyard (JSR, ERR) 480

LV/M Dynamics, Uncontrolled

Evaluation of aerodynamic derivatives from a magnetic balance system. Boray S. Raghunath and Hermon M. Parker (AIAA J, SYN) 897
Experimental correlation between the flow and Magnus characteristics of a spinning ogive-nose cylinder. James M. Martin and Charles W. Ingram (AIAA J, SYN) 901
Verification of ground test data by instrumented flight test of an artillery shell. Stanley D. Kahn, Vural Oskay and John Whiteside (JA) 143
Experimental determination of asymmetry-induced trim angles of attack. Edward L. Clark Jr. and Albert E. Hodapp Jr. (JSR) 322
A method for obtaining aerodynamic coefficients from yawsonde and radar data. Robert H. Whyte and William H. Mermagen (JSR) 384
Nonplanar tests using the wind-tunnel free-flight technique. Peter Jaffe (JSR) 435
A proposed entry vehicle dynamic model. A. A. Kirsch (JSR) 767
Synthesis of shuttle vehicle damping using substructure test results. Daniel D. Kana and Stephen Huzar (JSR) 790
Angular momentum and the aircraft-store separation problem. P. Daniels and T. A. Clare (JA, EN) 511
Exact hydroelastic solution for an ideal fluid in a hemispherical container. Robert N. Coppolino (JSR, EN) 612
Subharmonic behavior of a slightly asymmetric missile. Charles H. Murphy (AIAA J, TN) 884
Comment on "Wind-tunnel Magnus testing of a canted fin or self-rotating configuration." F. J. Regan (AIAA J, TC) 413
——Reply by author to F. J. Regan. Anders S. Platou (AIAA J, TC) 415

LV/M Fabrication

LV/M Flight Testing

Verification of ground test data by instrumented flight test of an artillery shell. Stanley D. Kahn, Vural Oskay, and John Whiteside (JA) 143
A proposed entry vehicle dynamic model. A. A. Kirsch (JSR) 767

LV/M Fuel and Propellant Systems (including Storage and Transfer)

Experimental study of the effects of low Bond number sloshing on thermal stratification. Robert J. Krane and Leroy A. Holmes (AIAA J, SYN) 1219
Vehicle-scale investigation of a fluorine jet-pump liquid hydrogen tank pressurization system. E. C. Cady and D. W. Kendle (JSR) 735
Analysis of gas flow through a multilayer insulation system. J. T. Lin (AIAA J) 995
Stresses in anisotropic nonhomogeneous cylinders. Manoranjan Maiti (AIAA J, TN) 1326

LV/M Guidance Systems (including Command and Information Systems)

Material injection alleviation during the RAM C-III flight. Lyle C. Schroeder and Norman D. Akey (JSR) 170
Optimality of proportional navigation. Eliezer Kreindler (AIAA J, TN) 878

LV/M Gust Loading and Wind Shear

Elastic launch vehicle response to sinusoidal gusts. Lars E. Ericsson, J. Peter Reding, and Rolf A. Guenther (JSR) 244
Nonstationary ascent wind analysis. L. J. Howell, B. J. Kuchta, and R. E. Barnes (JSR) 755
Relative magnitudes of stresses caused by static and dynamic launch vehicle loads. Lars E. Ericsson, J. Peter Reding, and Rolf A. Guenther (JSR, EN) 276

LV/M Mission Studies and Economics

Optimum stage weight distribution of multistage rockets. James A. Martin (AIAA J, TC) 255

LV/M Propulsion System Integration

LV/M Simulation

Solution of highly constrained optimal control problems using nonlinear programing. Richard G. Brusch and Robert H. Schappelle (AIAA J, SYN) 135
Support wire disturbances in near viscous wakes of slender supersonic bodies. Kenneth A. Mirly and B. P. Selberg (JSR, EN) 474
Determination of rocket ignition induced silo transient pressures using an expansion tube. Michael J. Wayte and Fredric A. Gruenich (JSR, EN) 602

LV/M Structural Design (including loads)

Computerized optimal control system design for boost vehicles. Wolfgang Trautwein and John M. Livingston (JSR) 227
Stresses in anisotropic nonhomogeneous cylinders. Manoranjan Maiti (AIAA J, TN) 1326

LV/M Subsystem Design

Calculation of forces on stores in the vicinity of aircraft. Hyman Serbin (JA, EN) 123

LV/M System and Component Ground Testing

Laser activated, model surface recession compensator system for testing ablative materials. Ronald A. Williamson, W. A. Rinehart, and Ronald R. Williams (JSR, EN) 684

LV/M Trajectories

Solution of highly constrained optimal control problems using nonlinear programing. Richard G. Brusch and Robert H. Schappelle (AIAA J, SYN) 135
Minimum fuel rocket maneuvers in horizontal flight. N. X. Vinh (AIAA J) 165
A method for obtaining aerodynamic coefficients from yawsonde and radar data. Robert H. Whyte and William H. Mermagen (JSR) 384
Integrals of the motion for optimal trajectories in atmospheric flight. Nguyen X. Vinh (AIAA J) 700
A crude-search Davidon-type technique with application to shuttle optimization. William F. Powers (JSR) 710
An application of Kalman techniques to aircraft and missile radar tracking. G. T. Aldrich and W. B. Krabill (AIAA J) 932
A method of numerical integration for trajectories with variational equations. W. H. Goodyear (AIAA J) 1732
Optimum stage weight distribution of multistage rockets. James A. Martin (AIAA J, TC) 255

Launch Vehicle Systems (including Ground Support)

New space transportation systems. J. Preston Layton and Jerry Grey (A/A, February) 12
Advanced technology and the space shuttle. Eugene S. Love (von Karman Lecture-A/A, February) 30
Short guide to Titan III launch vehicles. Gerald W. Driggers (A/A, February) 68
Flow areas for series-parallel compartment venting to satisfy pressure differential requirements. Cecil E. Kirby and George W. Ivy (JSR, EN) 350

Missile Systems

A space and missile test center of the future. Louis Kraff Jr. (A/A, June) 64
Optimal stochastic guidance laws for tactical missiles. John J. Deyst Jr. and Charles F. Price (JSR) 301
Direct statistical analysis of nonlinear systems: CADET. A. Gelb and R. S. Warren (AIAA J) 689
Reachable sets analysis—An efficient technique for performing missile/sensor tradeoff studies. David M. Salmon and Walter Heine (AIAA J) 927
Mass properties of sphere-cone entry vehicles. William J. Bootle (JSR, EN) 815

Sounding Rocket Systems

A fluidic sounding rocket motor ignition system. V. P. Marchese, E. L. Rakowsky, and L. J. Bement (JSR) 731

Tracking Systems

Optimal stochastic guidance laws for tactical missiles. John J. Deyst Jr. and Charles F. Price (JSR) 301

MARINE TECHNOLOGY

Marine Electric Power Systems

Marine Hydrodynamics, Vessel and Control Surface

Reflections on designing advanced marine vehicles. Robert A. Frosch (A/A, January) 50
Bottom depth effects on regular surface waves due to a submerged

Rankine body with attached vertical column. Peter Van Dyke (JH) 78
The NATO patrol missile hydrofoil (PHM). Karl M. Duff (JH) 97
Nonlinear coupling of pitch and roll modes in ship motions. Ali H. Nayfeh, Dean T. Mook, and Larry R. Marshall (JH) 145
Explanation of forces on a surface piercing strut after ventilation. R. C. McGregor, A. J. Wright, and P. D. Swales (JH, EN) 132

Marine Materials, Corrosion/Erosion

Impressed-current cathodic protection of aluminum-hulled craft. Boyce E. Miller and Harvey P. Hack (JH) 108

Marine Mooring Systems and Cable Mechanics

The lift force due to von Kármán's vortex wake. D. W. Sallet (JH) 161

Marine Propulsion Systems Integration

Thrust of an air-augmented waterjet. Robert G. Amos, Glennon Maples, and David F. Dyer (JH) 64
Calculation of inlet flows applied to ducted propellers. R. J. Weetman and D. E. Cromack (JH) 153

Marine Vessel Design (including Loads)

A survey of analytical methods for dynamic simulation of cable-body systems. Young-il Choo and Mario J. Casarella (JH, SA) 137
Man-computer graphics in preliminary ship design. Robert S. Johnson, Arthur L. Fuller, James A. Claffey, Fritz R. Bjorklund, and Bernard M. Thompson. (JH) 11
Canadian advances in surface-piercing hydrofoils. N. E. Jeffrey and M. C. Eames (JH) 85
The NATO patrol missile hydrofoil (PHM). Karl M. Duff (JH) 97
Ram wing surface effect boat. Roger W. Gallington (JH) 118
Geometrical characteristics of flat-faced bodies of revolution. Paul S. Granville (JH) 166
Experimental stress analysis of propeller blades utilizing photoelastic coating techniques. Hideya Tsushima and Joseph C. Conway (JH, EN) 41
Comment on "Added mass of a circular cylinder in contact with a rigid boundary." Theodore R. Goodman (JH, TC) 96

Marine Vessel Systems, Submerged

Potential flow about body in finite stream. K. S. Satija (JH) 17

Marine Vessel Systems, Surface

Low-water plane multihull ship principles, status, and plans for naval development. R. Leopold, R. S. Johnson, J. B. Hadler, and P. Genalis (JH, SA) 49
Seakeeping characteristics of small-waterplane-area-twin-hull ships. Nils Salvesen (JH) 3
Static and dynamic analysis of mooring lines. Pin Yu Chang and Walter D. Pilkey (JH) 29
Reflections on designing advanced marine vehicles. Robert A. Frosch (A/A, January) 50
Canadian advances in surface-piercing hydrofoils. N. E. Jeffrey and M. C. Eames (JH) 85
The NATO patrol missile hydrofoil (PHM). Karl M. Duff (JH) 97
Impressed-current cathodic protection of aluminum-hulled craft. Boyce E. Miller and Harvey P. Hack (JH) 108
Ram wing surface effect boat. Roger W. Gallington (JH) 118
Simplified tradeoff studies of large hydrofoil ships. J. R. Greco (JH, EN) 43

Marine Vessel Trajectories, Stability, and Control

A survey of analytical methods for dynamic simulation of cable-body systems. Young-il Choo and Mario J. Casarella (JH, SA) 137
Reflections on designing advanced marine vehicles. Robert A. Frosch (A/A, January) 50
Effect of sweep angle and drag on the flutter speed of hydrofoils. J. Mahig (JH) 104
An analysis of desired maneuvering characteristics of large Arctic SEV'S. E. N. Brooks Jr. and W. Zeitfuss Jr. (JH) 112

Marine Vessel Vibration

Effect of sweep angle and drag on the flutter speed of hydrofoils. J. Mahig (JH) 104

Oceanography, Physical and Biological

Microwave emission characteristics of oil slicks. A. T. Edgerton, D. Meeks, and D. Williams (JH) 35

Propulsion System Hydrodynamics

Dynamic response of marine propellers to nonuniform flowfields. Hideya Tsushima and Maurice Sevik (JH) 71
Effects of polyethylene-oxide solutions on the performance of a small propeller. James V. Sanders, Lee H. Henderson, and Robin J. White (JH) 124
Calculation of inlet flows applied to ducted propellers. R. J. Weetman and D. E. Cromack (JH) 153
Analysis of gas bubble-liquid coflow systems. Robert L. Stoy and Peter P. Ostrowski (JH, EN) 46

Sea Pollution Containment and Control

Microwave emission characteristics of oil slicks. A. T. Edgerton, D. Meeks, and D. Williams (JH) 35

Undersea Acoustics

A survey of analytical methods for dynamic simulation of cable-body systems. Young-il Choo and Mario J. Casarella (JH, SA) 137
Effects of polyethylene-oxide solutions on the performance of a small propeller. James V. Sanders, Lee H. Henderson, and Robin J. White (JH) 124
Ballistic range investigation of sonic-boom overpressures in water. Peter F. Intrieri and Gerald N. Malcolm (AIAA J) 510

Undersea Communication

Undersea Extra-Vehicular Activity

Undersea Habitability and Life Support Systems

Undersea Medicine (including Psychology, Pressure Effects, etc.)

Undersea Mining Systems

PROPULSION

Airbreathing Engine Testing

Integral rocket/ramjet for tactical missiles. John A. Belding and William B. Coley (A/A, December) 20
Simulation of velocity profiles by shaped gauze screens. J. L. Livesey and E. M. Laws (AIAA J) 184
A theoretical and experimental study of a jet stretcher system. R. C. Bauer, E. H. Matkins, R. L. Barebo, and W. C. Armstrong (JSR) 395
Gas path analysis applied to turbine engine condition monitoring. Louis A. Urban (JA) 400
An altitude test facility for large turbofan engines. Peter F. Ashwood (JA) 468
Measurement of emissions from jet engines in altitude test cells. J. Lloyd Grissom (JA) 475
Engine exhaust emission levels. A. K. Forney (JA) 716
Experimental study on optimization parameters of a supersonic jet ejector thrust augmentor. Dah Yu Cheng, Peter Wang, and Dean M. Chisel (JA, EN) 569
Analytical method for combining the interaction of inlet distortion and turbulence. R. L. Panton (JA, ERR) 192

Airbreathing Propulsion, Hypersonic

An analytical and experimental study of supersonic combustion of hydrogen in vitiated air stream. Marshall C. Burrows and Anatole P. Kurkov (AIAA J, SYN) 1217
Liquid jet injection into a supersonic flow. Edward A. Kush Jr. and Joseph A. Schetz (AIAA J, SYN) 1223
Hypersonic flows in large-scale inlet models. William R. Seebaugh (JA) 38
Prediction of precombustion wall pressure distributions in scramjet engines. P. J. Waltup and F. S. Billig (JSR, EN) 620
Supersonic combustion aid for liquid and gaseous fuels. J. J. Isaac and R. A. Cookson (AIAA J, TN) 1036
An analytical study of hypersonic inlets in free molecule flow. Max Kinslow (AIAA J, TN) 1205

Airbreathing Propulsion, Subsonic and Supersonic

Method for increasing wind tunnel Mach number for large-scale inlet testing. Eldon A. Latham and Norman E. Sorensen (JA, SYN) 577
Approximate analysis of containment/deflection ring responses to engine rotor fragment impact. Richard W.-H. Wu and Emmett A. Witmer (JA) 28
Simulation of velocity profiles by shaped gauze screens. J. L. Livesey and E. M. Laws (AIAA J) 184
Prediction of inlet duct overpressures resulting from engine surge. Franklin L. Marshall (JA) 274
Advanced supersonic inlet technology. Norman E. Sorensen, Donald B. Smeltzer, and Eldon A. Latham (JA) 278

Potential payoffs of variable geometry engines in fighter aircraft. P. Czysz, F. C. Glaser, and S. A. LaFavor (JA) 342
Bleed system design technology for supersonic inlets. Jan Syberg and Joseph L. Koncsek (JA) 407
Dynamic behavior of solid particles suspended by polluted flow in a turbine stage. M. Fathy Hussein and W. Tabakoff (JA) 434
Compact ejector thrust augmentation. Brian Quinn (JA) 481
Propulsion system design for the ATT. Gerald L. Brines (JA) 487
Annular truncated plug nozzle flowfield and base pressure characteristics. Wayne P. Sule and Thomas J. Mueller (JSR) 689
Engine exhaust emission levels. A. K. Forney (JA) 716
Shear stress and turbulence intensity models for coflowing axisymmetric streams. S. W. Zelazny, J. H. Morgenthaler, and D. L. Herendeen (AIAA J) 1165
Unique characteristics of exhaust-plume interference. Dave Bergman (JA, EN) 508
Study of gas-phase reactions in particle-laden, ducted flows. Klaus Schadow (AIAA J, TN) 1042
Comment on "Derivation of the thrust equation from conservation of energy." S. W. Greenwood (JA, TC) 448
Analytical method for combining the interaction of inlet distortion and turbulence. R. L. Panton (JA, ERR) 192

Combustion in Gases

Nitric oxide formation in gas turbine combustors. R. Kollrack and L. D. Aceto (AIAA J) 664
Ignition analysis of adiabatic, homogeneous systems including reactant consumption. Clarke E. Hermance (AIAA J) 1728
Performance of turbulent chemical laser. Paul M. Chung (AIAA J, TN) 1040

Combustion in Heterogeneous Media

An experimental-analytical method to study steady spray combustion. Frediano V. Bracco (JSR, SYN) 353
Depressurization extinguishment of composite solid propellants: Influence of composition and catalysts. Horst Selzer (AIAA J, SYN) 1221
New horizons in chemical propulsion. William Cohen (A/A, December) 46
Theory of flame front propagation in porous propellant charges under confinement. K. K. Kuo, R. Vichnevetsky, and M. Summerfield (AIAA J) 444
Verification of a comprehensive thrust chamber compatibility model for liquid rocket engines. W. L. Pritz and R. J. Schoner (JSR) 558
Optimum design of space storable gas/liquid coaxial injectors. R. J. Burick (JSR) 663
Nitric oxide formation in gas turbine combustors. R. Kollrack and L. D. Aceto (AIAA J) 664
Effects of composition on acceleration induced burning-rate augmentation. G. B. Northam (AIAA J) 848
Measurement of hydrazine gas generator performance by gas chromatography. James T. Bryant and Stanley E. Wood (AIAA J, TN) 561
Supersonic combustion aid for liquid and gaseous fuels. J. J. Isaac and R. A. Cookson (AIAA J, TN) 1036
Quasi-steady gas-phase flame theory in unsteady burning of a homogeneous solid propellant. F. A. Williams (AIAA J, TN) 1328

Combustion Stability, Ignition, and Detonation

Dynamic responses of solid rockets during rapid pressure change. S. L. Turk, R. A. Battista, K. K. Kuo, L. H. Caveny, and M. Summerfield (JSR) 137
Experimental determination of three-dimensional liquid rocket nozzle admittances. B. T. Zinn, W. A. Bell, B. R. Daniel, and A. J. Smith Jr. (AIAA J) 267
Theory of flame front propagation in porous propellant charges under confinement. K. K. Kuo, R. Vichnevetsky, and M. Summerfield (AIAA J) 444
A fluidic sounding rocket motor ignition system. V. P. Marchese, E. L. Rakowsky, and L. J. Bement (JSR) 731
Nozzle damping in solid rocket instabilities. Ben T. Zinn (AIAA J) 1492
Starting transient of solid-propellant rocket motors with high internal gas velocities. A. Peretz, K. K. Kuo, L. H. Caveny, and M. Summerfield (AIAA J) 1719
Ignition analysis of adiabatic, homogeneous systems including reactant consumption. Clarke E. Hermance (AIAA J) 1728
Restart transients of hybrid rocket engines. M. A. Saraniero, L. H. Caveny, and M. Summerfield (JSR, EN) 215
Quasi-steady gas-phase flame theory in unsteady burning of a homogeneous solid propellant. F. A. Williams (AIAA J, TN) 1328

Electric and Advanced Space Propulsion

Effects of the hollow cathode discharge on throttled ion thruster performance. Paul J. Wilbur (JSR, SYN) 3
Influence of magnetic fields on anode losses in MPD-arcs. Wolfgang Schall (AIAA J, SYN) 10
Pressure and current effects on the thermal efficiency of an MPD arc used as a plasma source. Thomas J. Pivirotto (AIAA J, SYN) 12
An investigation of physical processes in a hollow cathode discharge. D. G. Fearn and C. M. Philip (AIAA J, SYN) 131
Establishment of quasi-steady operation in a pulsed MPD arcjet. Kyoichi Kuriki and Masaaki Inutake (AIAA J, SYN) 133
Interferometric density measurements in the arc of a pulsed plasma thruster. K. I. Thomassen and D. Tong (JSR, SYN) 163
Exhaust flow and propulsion characteristics of a pulsed MPD-arc thruster. Charles J. Michels and Thomas M. York (AIAA J, SYN) 579
Effective specific impulse of external nuclear pulse propulsion systems. Thaine W. Reynolds (JSR, SYN) 629
Steady-state interactions in plasma accelerators. R. S. Steinolfson (AIAA J, SYN) 779
Dished accelerator grids on a 30-cm ion thruster. V. K. Rawlin, B. A. Banks, and D. C. Byers (JSR) 29
Ion thruster thermal characteristics and performance. L. Wen, J. D. Crotty, and E. V. Pawlik (JSR) 35
A facility for long-term ion thruster system testing. Howard F. McKinney and Richard A. Dutton (JSR) 42
Star tracking through the exhaust beam of mercury bombardment thrusters. Nelson L. Milder and James S. Sovey (JSR) 47
Direct thrust measurements and beam diagnostics on an 18-cm Kaufman ion thruster. Hinrich J. Junge and Uwe W. Sprengel (JSR) 101
Component development for a 10-cm mercury ion thruster. J. W. Pye (JSR) 106
French research on cesium contact ion sources. Emile Le Grives and Jean Labbe (JSR) 113
All-electric thruster control of a geostationary communications satellite. Marshall H. Kaplan (JSR) 119
Optimal quasi-steady plasma thruster system characteristics. Dennis E. Ludwig and Arnold J. Kelly (JSR) 165
Ion thruster performance calibration. Eugene V. Pawlik, Raymond Goldstein, Dennis J. Fitzgerald, and Roy W. Adams (JSR) 327
Performance study of a solid fuel-pulsed electric microthruster. Albert Solbes and Robert J. Vondra (JSR) 406
Development of a 5-cm flight-qualified mercury ion thruster. J. Hyman Jr. (JSR) 503
Annular truncated plug nozzle flowfield and base pressure characteristics. Wayne P. Sule and Thomas J. Mueller (JSR) 689
Performance of a modified downstream-cathode MPD thruster. James A. Burkhart (JSR, EN) 86
Visual display of the spatial distribution of colloidal particle beams. J. D. Hepburn, F. S. Chute, and F. E. Vermeulen (AIAA J, TN) 370
Evidence of fireball phenomena in hollow cathode of electron bombardment ion thrusters. R. A. Jacobsen and H. P. Eubank (AIAA J, TN) 399
Spacecraft applications of high-temperature electrically conducting ceramics. Carl R. Halbach, Russell J. Page, and Owen J. McCaughey (JSR, EN) 415
A low-power MPD thruster of duoplasmatron type. Itsuro Kimura and Ryuhei Kumazawa (JSR, EN) 472
One-mlb colloid thruster system development. Sidney Zafran, John C. Beynon, Philip W. Kidd, Haywood Shelton, and Frederick A. Jackson (JSR, EN) 531
Durability tests of a 5-cm diam ion thruster system. Shigeo Nakanishi (JSR, EN) 608
Correlation of ion and beam current densities in Kaufman thrusters. Paul J. Wilbur (JSR, EN) 623
Radiation from pulsed electric thrusters. K. I. Thomassen (JSR, EN) 679
Shock formation by a moving force field. R. S. Steinolfson (AIAA J, TN) 1201
Comment on "Performance of quasi-steady MPD thrusters at high powers." David B. Fradkin (AIAA J, TC) 413

Fuels and Propellants, Properties of

New horizons in chemical propulsion. William Cohen (A/A, December) 46
Induced plasticization—An inner bore surface treatment technique for solid-propellant rocket motors. Donald Saylak (JSR) 564
Formulating propellants for fully case-bonded end-burning motors. H. E. Marsh Jr. and D. E. Udlock (JSR, ERR) 288

Liquid Rocket Engines

An experimental-analytical method to study steady spray combustion. Frediano V. Bracco (JSR, SYN) 353
Laminar film boiling on inclined isothermal flat plates. H. R. Nagendra (AIAA J) 72
Theoretical, quasi-static analysis of cavitation compliance in turbopumps. C. Brennen and A. J. Acosta (JSR) 175
Experimental determination of three-dimensional liquid rocket nozzle admittances. B. T. Zinn, W. A. Bell, B. R. Daniel, and A. J. Smith Jr. 267
Additives for heat-transfer reduction in the propellant combinations N_2O_4-MMH and N_2O_4—A-50. K. Berman, T. Albanese, A. Blessing, and N. Roth (JSR) 493
Cryogenic liquid O_2/H_2 reaction control systems for space shuttle. P. J. Kelly, H. B. McKee, and T. C. Patten (JSR) 496
Selection of a surface-tension propellant management system for the Viking 75 orbiter. M. W. Dowdy and S. C. DeBrock (JSR) 549

Verification of a comprehensive thrust chamber compatibility model for liquid rocket engines. W. L. Pritz and R. J. Schoner (JSR) 558
Optimum design of space storable gas/liquid coaxial injectors. R. J. Burick (JSR) 663
Factor of fuel pyrolysis in injector design. Leonard Dauerman and G. E. Salser (AIAA J, TN) 99
Improved hardening theory for cyclic plasticity. Robert G. Vos and William H. Armstrong (AIAA J, TN) 400
Scaling of performance and thermal environment in fuel-vortex cooled rocket engines. K. Berman, T. Ferger, N. Roth, and A. Blessing (JSR, EN) 476
Material evaluation under direct rocket exhaust impingement. J. T. Fredericks and M. Shorr (JSR, EN) 533
Missile liquid rocket propulsion unit VR35 and some of its development problems.Björn Ankarswärd (JSR, EN) 604
Transient forced convection heat transfer from an isothermal flat plate. H. R. Nagendra (AIAA J, TN) 876

Marine Propulsion

Nuclear Propulsion

Effective specific impulse of external nuclear pulse propulsion systems. Thaine W. Reynolds (JSR, SYN) 629
New horizons in chemical propulsion. William Cohen (A/A, December) 46
Analytical and experimental investigations of laminar mixing of confined heterogeneous jets. Gideon Shavit and Zalman Lavan (AIAA J) 352
Performance potential of the colloid core reactor concept in near-Earth applications. Thomas C. Meier (JSR) 571

Rocket Engine Testing

Integral rocket/ramjet for tactical missiles. John A. Belding and William B. Coley (A/A, December) 20

Solid and Hybrid Rocket Engines

Full control of solid propellant rockets by secondary injection. I. Zeierman and Y. Manheimer-Timnat (JSR, SYN) 161
Depressurization extinguishment of composite solid propellants: Influence of composition and catalysts. Horst Selzer (AIAA J, SYN) 1221
Dynamic responses of solid rockets during rapid pressure change. S. L. Turk, R. A. Battista, K. K. Kuo, L. H. Caveny, and M. Summerfield (JSR) 137
Nozzle damping in solid rocket instabilities. Ben T. Zinn (AIAA J) 1492
Analysis of the chemically reacting laminar boundary layer during hybrid combustion. Herman Krier and Harold Kerzner (AIAA J) 1691
Starting transient of solid-propellant rocket motors with high internal gas velocities. A. Peretz, K. K. Kuo, L. H. Caveny, and M. Summerfield (AIAA J) 1719
Restart transients of hybrid rocket engines. M. A. Saraniero, L. H. Caveny, and M. Summerfield (JSR, EN) 215
Failure criterion for a propellant of spherical solid rocket motor. Y. Toda, T. Nagaoka, Z. Ueno, Y. Okada, and T. Kunio (JSR, EN) 807
Quasi-steady gas-phase flame theory in unsteady burning of a homogeneous solid propellant. F. A. Williams (AIAA J, TN) 1328
Formulating propellants for fully case-bonded end-burning motors. H. E. Marsh Jr. and D. E. Udlock (JSR, ERR) 288

SPACECRAFT TECHNOLOGY

Data Sensing and Presentation of Transmission Systems

The remote measurement of nitric oxide from an airplane or space platform. I. M. Pikus, H. W. Goldstein, and T. R. Riethof (JSR) 190
High resolution multispectral camera system for ERTS A & B. B. P. Miller, George A. Beck, and Joseph M. Barletta (JSR) 638
Multiring probe in a flowing ionospheric plasma. John W. Sheldon and Nobie H. Stone (AIAA J, TN) 1051

Earth Satellite Systems, Unmanned

Observability of high-altitude atmospheric scattering layers. Derek M. Cunnold (JSR, SYN) 419
Satellites for maritime applications. James L. Baker (JSR, SYN) 547
Advanced technology and the space shuttle. Eugene S. Love (von Karman Lecture-A/A, February) 30
ERTS-1 Toward global monitoring. James C. Fletcher (A/A, September) 32
Space science plans for the shuttle era. John E. Naugle and Rodney W. Johnson (A/A, May) 34
ERTS-1 Teaching us a new way to see. Enrico P. Mercanti (A/A, September) 36
Lower payload costs through refurbishment and module replacement. James T. Murphy and Charles R. Darwin (A/A, May) 40
Small Earth terminals for satellite communications. Burton I. Edelson (A/A, June) 40
ERTS data for everyman. Douglas H. MacCallum (A/A, April) 43
Refurbishable spacecraft: Modules and components for the shuttle era. Frank C. Bolton (A/A, April) 44
Design considerations for shuttle information management. R. E. Poupard, W. H. Lee, T. D. Steele, and F. J. Hudson (A/A, May) 48
Shuttle payloads: Saving dollars by offsetting risks. Henry Keith Burbridge (A/A, April) 52
On-orbit checkout and repair as a factor in economical spacecraft design and operation. Kenneth Urbach (A/A, April) 60
A portfolio of ERTS-1 highlights. (A/A, September) 65
Space systems summaries: Communications Satellite Programs. (A/A, June) 71
Space systems summaries: Weather satellites. (A/A, August) 77
A study of satellite television broadcasting systems for India. B. S. Rao, K. S. Karnik, and V. D. Gupta (JSR, EN) 537
Remote sensing of atmospheric turbidity variation by satellite. Alden McLellan (JSR, EN) 743

Earth-Orbital Trajectories

Solution of highly constrained optimal control problems using nonlinear programing. Richard G. Brusch and Robert H. Schappelle (AIAA J, SYN) 135
Semianalytic theory of long-term behavior of Earth and lunar orbiters. Bernard Kaufman and Robert Dasenbrook (JSR) 377
Uniform representation of the gravitational potential and its derivatives. Samuel Pines (AIAA J) 1508
Numerical averaging in orbit prediction. C. Uphoff (AIAA J) 1512
A method of numerical integration for trajectories with variational equations. W. H. Goodyear (AIAA J) 1732
Optimum strategy for the correction of orbit-injection errors of arbitrary orientation. V. A. Chobotov (AIAA J, TN) 375
Exact analytical solutions for orbits of bodies with atmospheric drag. Morris Morduchow and Giuseppe Volpe (AIAA J, TN) 381
Integrals for optimal flight over a spherical Earth. H. Gardner Moyer (AIAA J, TN) 1441

Entry Deceleration Systems and Flight Mechanics (e.g., Parachutes)

Pilot control of shuttle orbiter during approach and landing. Henry A. Streb Jr. (JA) 105
Surface temperature effect on subsonic stall. David J. Norton, John M. Macha, and James C. Young (JSR) 581
Penetration of retrorocket exhausts into subsonic counterflows. Philip O. Jarvinen and Jacques A. F. Hill (JSR, EN) 85
Effect of suspension-line viscous damping on parachute opening load amplification. Lamont R. Poole (JSR, EN) 92
Helium bubble survey of an opening parachute flowfield. Paul C. Klimas (JA, EN) 567
Viscous damping characteristics of dacron parachute suspension-line cord. Lamont R. Poole (JSR, EN) 751
An advanced technique for the prediction of decelerator system dynamics. Theodore A. Talay, W. Douglas Morris, and Charles H. Whitlock (JSR, EN) 817

Entry Vehicle Dynamics and Control

Stability criteria for accelerating and decelerating aircraft. E. V. Laitone and Wen-Fan Lin (JA, SYN) 129
Stabilization concepts for a spherical planetary entry probe configuration. J. M. Cassanto (JSR, SYN) 753
Advances in modeling aerodynamic decelerator dynamics.Charles H. Whitlock (A/A, April) 67
Strategies for control of the space shuttle transition. Robert F. Stengel (JSR) 77
Experimeptal evaluation of a roll control system for a shrouded cone. Billy W. Marshall and Amado A. Trujillo (JSR) 362
Effects of delta wing separation on shuttle dynamics. J. Peter Reding and Lars E. Ericsson (JSR) 421
Effect of thermally expanding surfaces on aerodynamic roll torques for cones. John B. McDevitt (AIAA J) 505
A proposed entry vehicle dynamic model. A. A. Kirsch (JSR) 767
Nonlinear and adaptive estimation in re-entry. Andrew H. Jazwinski (AIAA J) 922
Dynamic instability caused by forebody blowing. Lars E. Ericsson and Rolf A. Guenther (AIAA J, TN) 231
A mechanism for ablation-induced spin-up. Lars E. Ericsson and Donald A. Price Jr. (AIAA J, TN) 567
Aerodynamic force measurement on caret and delta wings at high incidence. G. T. Coleman (JSR, EN) 750
Conditions for stability of an ablating symmetric rolling re-entry vehicle. I. Kadushin (JSR, EN) 808
An advanced technique for the prediction of decelerator system dynamics. Theodore A. Talay, W. Douglas Morris, and Charles H. Whitlock (JSR, EN) 817
Integrals for optimal flight over a spherical Earth. H. Gardner Moyer (AIAA J, TN) 1441
Isoperimetric formulation for some problems of optimization of the entry into atmosphere. Al Marinescu (AIAA J, TN) 1768

Entry Vehicles and Landers

Stabilization concepts for a spherical planetary entry probe configuration. J. M. Cassanto (JSR, SYN) 753
Analysis of sublimation-cooled coated mirrors in convective and radiative environments. John T. Howe and Michael J. Green (AIAA J) 80
Pilot control of shuttle orbiter during approach and landing. Henry A. Streb Jr. (JA) 105
Computation of space shuttle flowfields using noncentered finite-difference schemes. Paul Kutler, R. F. Warming, and Harvard Lomax (AIAA J) 196
Analysis of legged landers for the survivable soft landing of instrument payloads. Robert M. Laurenson, Ronald A. Melliere, and John R. McGehee (JSR) 208
A base pressure experiment for determining the atmospheric pressure profile of planets. J. M. Cassanto (JSR) 253
Newtonian aerodynamic forces from Poisson's equation. Jack Pike (AIAA J) 499
Multishocked, three-dimensional supersonic flowfields with real gas effects. P. Kutler, W. A. Reinhardt, and R. F. Warming (AIAA J) 657
Microwave and electrostatic probe measurements on a blunt re-entry vehicle. Dallas T. Hayes and Walter Rotman (AIAA J) 675
Penetration of retrorocket exhausts into subsonic counterflows. Philip O. Jarvinen and Jacques A. F. Hill (JSR, EN) 85
An experimental investigation of base heating on typical Mars entry body shapes. O. L. Zappa and W. G. Reinecke (JSR, EN) 273
Experimental and simulation study results of a planetary landing site selection system. Roger T. Schappell and Gail R. Johnson (JSR, EN) 277
Approximation for maximum centerline heating on lifting entry vehicles. Vernon T. Helms III (JSR, EN) 599
Reflectance and unsteady temperature distribution of diffuse reflectors. Kenneth C. Weston and R. S. Reddy (AIAA J, TN) 1775

Entry Vehicle Mission Studies and Flight Mechanics

Strategies for control of the space shuttle transition. Robert F. Stengel (JSR) 77
Nonplanar tests using the wind-tunnel free-flight technique. Peter Jaffe (JSR) 435
Roll-modulated lifting entry optimization. Henry J. Kelley and Henry C. Sullivan (AIAA J) 913
Stagnation region radiative heating with steady-state ablation during Venus entry. Kenneth Sutton and R. A. Falanga (JSR, EN) 155
Estimation of aerodynamics for slender bodies alone and with lifting surfaces at α's from 0° to 90°. Leland H. Jorgensen (AIAA J, TN) 409
Approximation for maximum centerline heating on lifting entry vehicles. Vernon T. Helms III (JSR, EN) 599

Entry Vehicle Testing

Electrostatic probe data from Bell Sphere B09. Raymond W. Huggins (AIAA J, SYN) 257
Material injection alleviation during the RAM C-III flight. Lyle C. Schroeder and Norman D. Akey (JSR) 170
PAET entry heating and heat protection experiment. Nick S. Vojvodich (JSR) 181
Ultraviolet radiation from the bow shock of a sphere during atmospheric re-entry. Leonilda A. Farrow and Arthur H. Fitch (AIAA J) 272
Experimental determination of asymmetry-induced trim angles of attack. Edward L. Clark Jr. and Albert E. Hodapp Jr. (JSR) 322
Experimental evaluation of a roll control system for a shrouded cone. Billy W. Marshall and Amado A. Trujillo (JSR) 362
Flight test correlation technique for turbulent base heat transfer with low ablation. Bruce M. Bulmer (JSR, EN) 222
Detection of flight vehicle transition from base measurements. Bruce M. Bulmer (JSR, EN) 280
Effect of base mounted cylinders on a supersonic near wake. Richard A. Merz, Robert H. Page, and Christian E. G. Przirembel (JSR, EN) 470
Correlation of hypersonic zero-lift drag data. John J. Rehder (JSR, EN) 622
Laser activated, model surface recession compensator system for testing ablative materials. Ronald A. Williamson, W. A. Rinehart, and Ronald R. Williams (JSR, EN) 684
Hypersonic flight results showing Reynolds-number influence on turbulent base pressure. Bruce M. Bulmer (AIAA J, TN) 1785

Extraterrestrial Surface Transportation

Equations of motion of the lunar roving vehicle. Stanley Kaufman (JSR) 66

Extra-Vehicular Activity

Lunar and Interplanetary Spacecraft Systems, Manned

Capabilities of buoyant-lift vehicles in planetary atmospheres. S. W. Greenwood (JSR, EN) 352

Lunar and Interplanetary Spacecraft Systems, Unmanned

Multiasteroid comet missions using solar electric propulsion. David F. Bender and Roger D. Bourke (JSR, SYN) 481
Exploring Jupiter, Saturn and their satellites. S. I. Rasool, J. E. Long, and Naugle, J. E. (A/A, October) 26
Space systems summaries: Orbiting Solar Observatory (OSO). (A/A, July) 71
Space systems summaries: Lunar Orbiter Program. (A/A, November) 75
Space systems summaries: Orbiting Astronomical Observatory Programs. (A/A, December) 75
Space systems summaries: Venus and Mars Spacecraft Programs. (A/A, September) 81
Analysis of legged landers for the survivable soft landing of instrument payloads. Robert M. Laurenson, Ronald A. Melliere, and John R. McGehee (JSR) 208
Viking type spacecraft rendezvous with the Martian moons. James J. Taylor and Nickolas L. Faust (JSR) 520
Maneuver design and implementation for the Mariner 9 mission. R. T. Mitchell and W. J. O'Neil (JSR) 723
Experimental and simulation study results of a planetary landing site selection system. Roger T. Schappell and Gail R. Johnson (JSR, EN) 277

Lunar and Interplanetary Trajectories

Hyperbolic orbit equations with asymptote-based coordinates. A. M. McDermott (JSR, SYN) 5
Numerical analysis of the asymptotic two-point boundary value solution for N-body trajectories. J. E. Lancaster and R. A. Allemann (AIAA J, SYN) 259
Multiasteroid comet missions using solar electric propulsion. David F. Bender and Roger D. Bourke (JSR, SYN) 481
Semianalytic theory of long-term behavior of Earth and lunar orbiters. Bernard Kaufman and Robert Dasenbrock (JSR) 377
Viking type spacecraft rendezvous with the Martian moons. James J. Taylor and Nickolas L. Faust (JSR) 520
Opportunities for multiple asteroid flybys in the 1970's and 1980's. David R. Brooks, Joseph W. Drewry, and William F. Hampshire II (JSR) 588
Mission design and navigation for a 1977–1978 Venus swingby/Mercury orbiter. Scott K. Asnin and Darrell G. Roos (JSR) 631
Numerical averaging in orbit prediction. C. Uphoff (AIAA J) 1512
A method of numerical integration for trajectories with variational equations. W. H. Goodyear (AIAA J) 1732
Preliminary orbit determination for lunar satellites. E. R. Lancaster (AIAA J, TN) 558
Round trip Mars missions using looping trajectories in the 1980–2000 time period. James F. Kibler (JSR, EN) 686

Meteoroid Protection Systems

Computerized meteoroid protection system design for an outer-planet spacecraft. P. G. Kase (JSR, SYN) 625

Radiation Protection Systems

Analysis of sublimation-cooled coated mirrors in convective and radiative environments. John T. Howe and Michael J. Green (AIAA J) 80

Space Crew Training

Spacecraft Attitude Dynamics and Control

Supplementary active stabilization of nonrigid gravity gradient satellites. James E. Keat (JSR, SYN) 97
Cavity radius vs energy dissipation rate in liquid-filled, precessing, spherical cavities. James P. Vanyo (AIAA J, SYN) 261
Attitude dynamics of a "nearly spherical" dual-spin satellite and orbital results for OSO-7. T. M. Spencer (JSR, SYN) 289
Measurement of system inertia tensors in precessing nonrigid systems. James P. Vanyo (AIAA J, SYN) 577
Use of baffles to suppress energy dissipation in liquid-filled precessing cavities. James P. Vanyo and Peter W. Likins (JSR, SYN) 627
Satellite attitude control by reaction jet frequency modulation. Jacques Bernussou (JSR) 52
A comparative study of stability methods for flexible satellites. Leonard Meirovitch and Robert A. Calico (AIAA J) 91
All-electric thruster control of a geostationary communications satellite. Marshall H. Kaplan (JSR) 119
Attitude stability of a dual-spin satellite with a large flexible solar array. D. B. Cherchas and P. C. Hughes (JSR) 126
Attitude control of a spinning Skylab. S. M. Seltzer, Gerhard Schweitzer, and Bernard Asner Jr. (JSR) 200
Star scanner attitude determination for the OSO-7 spacecraft. D. L. Mackison, R. L. Gutshall, and F. Volpe (JSR) 262
Gravitational stabilization of a two-body satellite. R. H. Cronin and T. R. Kane (JSR) 291
Nutational stability of a dual-spin satellite under the influence of applied

reaction torques. P. M. Bainum and J. V. Fedor (JSR) 295
Solar pressure control of a dual-spin satellite. V. J. Modi and K. C. Pande (JSR) 355
Experimental evaluation of a roll control system for a shrouded cone. Billy W. Marshall and Amado A. Trujillo (JSR) 362
Liapunov stability analysis of spinning flexible spacecraft. Frank J. Barbera and Peter Likins (AIAA J) 457
Equilibrium attitude transitions of a three-rotor gyrostat in a circular orbit. Atanas A. Anchev (AIAA J) 467
Periodic attitude control of a slowly spinning spacecraft. Ernest P. Todosiev (JSR) 716
Control of spin ambiguity during reorientation of an energy dissipating body. Marshall H. Kaplan and Robert J. Cenker (JSR) 757
Motion of a dual-spin satellite during momentum wheel spin-up. S. Sen and P. M. Bainum (JSR) 760
Rotations about nonorthogonal axes. Paul B. Davenport (AIAA J) 853
Spin stability of torque-free systems—Part I. Djalma R. Teixeira-Filho and Thomas R. Kane (AIAA J) 862
Spin stability of torque-free systems—Part II. Djalma R. Teixeira-Filho and Thomas R. Kane (AIAA J) 868
Error analysis of Euler angle transformations. Richard L. Pio (AIAA J) 871
Stable tumbling motions of a dual-spin satellite subject to gravitational torques. Richard W. Longman (AIAA J) 916
Optimized performance of a semipassive aerodynamic controller. V. J. Modi and S. K. Shrivastava (AIAA J) 1080
Stability of deformable gyrostats based on Sturm's theorem. Guy Campion, David A. Johnson, and Pierre Y. Willems (AIAA J) 1093
Phase lead S-plane compensation. Itzhack Y. Bar-Itzhack (AIAA J) 1521
Effects of magnetic and gravitational torques on spinning satellite attitude. Michio Hara (AIAA J) 1737
Performance of a modified downstream-cathode MPD thruster. James A. Burkhart (JSR, EN) 86
Nutation dampers vs precession dampers for asymmetric spinning spacecraft. C. C. Schneider Jr. and P. W. Likins (JSR, EN) 218
Precession rate matching for a space station in orbit about an oblate planet. David B. Johnson (JSR, EN) 467
Solar pressure induced librations of spinning axisymmetric satellites. V. J. Modi and K. C. Pande (JSR, EN) 615
Accelerating one-dimensional searches. Ivan L. Johnson Jr. and James L. Kamm (AIAA J, TN) 757
——Accelerating one-dimensional searches. Ivan L. Johnson Jr. and James L. Kamm (AIAA J, ERR) 1456
Comment on "A method of Earth-pointing attitude control for elliptic orbits." Werner O. Schiehlen (AIAA J, TC) 127
——Reply by author to W. O. Schiehlen. G. M. Connell (AIAA J, TC) 128
——Comment on "A method of Earth-pointing attitude control for elliptic orbits." Werner O. Schiehlen (AIAA J, ERR) 1056
A universal three-angle basis for rotational kinematic analysis, simulation and control. James Nohl Churchyard (JSR, ERR) 480

Spacecraft Communication Systems

Satellites for maritime applications. James L. Baker (JSR, SYN) 547
Material injection alleviation during the RAM C-III flight. Lyle C. Schroeder and Norman D. Akey (JSR) 170
A simplified correlation method for distance measurement using satellites. W. D. T. Davies and S. C. Martin (JA) 525
Abundance of NH_3 on Jupiter inferred from microwave radiometry data. Robert J. Richardson (JSR) 647

Spacecraft Configurational and Structural Design (including Loads)

Space science plans for the shuttle era. John E. Naugle and Rodney W. Johnson (A/A, May) 34
Lower payload costs through refurbishment and module replacement. James T. Murphy and Charles R. Darwin (A/A, May) 40
Design considerations for shuttle information management. R. E. Poupard, W. H. Lee, T. D. Steele, and F. J. Hudson (A/A, May) 48
New solar cell systems for solar probes. Hans Eder (JSR) 196
Analysis of legged landers for the survivable soft landing of instrument payloads. Robert M. Laurenson, Ronald A. Melliere, and John R. McGehee (JSR) 208
Flutter of pairs of aerodynamically interfering delta wings. Richard R. Chipman, Frank J. Rauch, and Robert W. Hess (JA) 728
Flow areas for series-parallel compartment venting to satisfy pressure differential requirements. Cecil E. Kirby and George W. Ivy (JSR, EN) 350
Experimental study of a high lift re-entry vehicle configuration. Roel Houwink and Bryan E. Richards (AIAA J, TN) 749

Spacecraft Electric Power Systems

Solar power via satellite. Peter E. Glaser (A/A, August) 60
New solar cell systems for solar probes. Hans Eder (JSR) 196
High-voltage solar array technology. Bill G. Herron, John R. Bayless, and John D. Worden (JSR) 457

Spacecraft Flight Testing

Airborne-science techniques aid shuttle planning. Donald R. Mulholland and Carr B. Neel (A/A, May) 24

Spacecraft Ground Testing and Simulation (including Components)

Airborne-science techniques aid shuttle planning. Donald R. Mulholland and Carr B. Neel (A/A, May) 24
A facility for long-term ion thruster system testing. Howard F. McKinney and Richard A. Dutton (JSR) 42
Viking pitch damping derivatives as influenced by support interference and test techniques. Sy Steinberg, Bob L. Uselton, and Paul M. Siemers III (JSR) 443
Determination of free-body responses from constrained tests. Alex Berman and Nicholas Giansante (AIAA J) 1622

Spacecraft Habitability and Life Support Systems

Early results from Skylab I. The Skylab Program Office (A/A, September) 22
Space life-support and environmental control: Systems for the '70s. A. L. Ingelfinger (A/A, May) 61
Space systems summaries: Biosatellites. (A/A, October) 79

Spacecraft Mission Studies and Economics

New space transportation systems. J. Preston Layton and Jerry Grey (A/A, February) 12
Dished accelerator grids on a 30-cm ion thruster. V. K. Rawlin, B. A. Banks, and D. C. Byers (JSR) 29
Advanced technology and the space shuttle. Eugene S. Love (von Karman Lecture-A/A, February) 30
Viking type spacecraft rendezvous with the Martian moons. James J. Taylor and Nickolas L. Faust (JSR) 520
A computerized technique for mission profile design analysis. R. D. Vaage and J. C. Tuttle (JSR) 525
Performance potential of the colloid core reactor concept in near-Earth applications. Thomas C. Meier (JSR) 571
Opportunities for multiple asteroid flybys in the 1970's and 1980's. David R. Brooks, Joseph W. Drewry, and William F. Hampshire II (JSR) 588
Mission design and navigation for a 1977–1978 Venus swingby/Mercury orbiter. Scott K. Asnin and Darrell G. Roos (JSR) 631
Planetary flybys resulting in heliocentric orbits normal to the ecliptic with fixed perihelia. James J. Buglia (JSR, EN) 601
Round trip Mars missions using looping trajectories in the 1980–2000 time period. James F. Kibler (JSR, EN) 686

Spacecraft Navigation, Guidance, and Flight-Path Control Systems

Satellites for maritime applications. James L. Baker (JSR, SYN) 547
Maneuver strategies for multiplanet missions. Narendra P. Dwivedi (AIAA J, SYN) 1229
Star tracking through the exhaust beam of mercury bombardment thrusters. Nelson L. Milder and James S. Sovey (JSR) 47
Strategies for control of the space shuttle transition. Robert F. Stengel (JSR) 77
Pilot control of shuttle orbiter during approach and landing. Henry A. Streb Jr. (JA) 105
Star scanner attitude determinations for the OSO-7 spacecraft. D. L. Mackison, R. L. Gutshall, and F. Volpe (JSR) 262
A guidance and navigation system for automatic stationkeeping in Earth orbit. Donald E. Gustafson and Bernard A. Kriegsman (JSR) 369
Mission design and navigation for a 1977–1978 Venus swingby/Mercury orbiter. Scott K. Asnin and Darrell G. Roos (JSR) 631
An omnidirectional gliding ribbon parachute and control system. William B. Pepper and John R. Biesterveld (JA) 678
A crude-search Davidon-type technique with application to shuttle optimization. William F. Powers (JSR) 710
Maneuver design and implementation for the Mariner 9 mission. R. T. Mitchell and W. J. O'Neil (JSR) 723
Application of sequential filtering to estimation of the interplanetary orbit of Mariner 9. Kenneth H. Rourke and James F. Jordan (JSR) 773
Propellant requirements for midcourse velocity corrections. B. G. Lee and R. J. Boain (JSR) 779
Rotations about nonorthogonal axes. Paul B. Davenport (AIAA J) 853
Real-time optimal guidance for orbital maneuvering. Audrey O. Cohen and Kenneth R. Brown (AIAA J) 1266
First-order corrections to approximate solutions to two-point boundary-condition problems. Jan F. Andrus and William G. Greenleaf (AIAA J) 1517
Experimental and simulation study results of a planetary landing site selection system. Roger T. Schappell and Gail R. Johnson (JSR, EN) 277
Mars lander position estimation in the presence of ephemeris biases. W. Thomas Blackshear, Robert H. Tolson, and Gail M. Day (JSR, EN) 284

Optimum strategy for the correction of orbit-injection errors of arbitrary orientation. V. A. Chobotov (AIAA J, TN) 375

Spacecraft Propulsion Systems Integration

Star tracking through the exhaust beam of mercury bombardment thrusters. Nelson L. Milder and James S. Sovey (JSR) 47
Reusable one-stage-to-orbit shuttles: Brightening prospects. Robert Salkeld and Rudi Beichel (A/A, June) 48
All-electric thruster control of a geostationary communications satellite. Marshall H. Kaplan (JSR) 119
Cryogenic liquid O_2/H_2 reaction control systems for space shuttle. P. J. Kelly, H. B. McKee, and T. C. Patten (JSR) 496
Propellant requirements for midcourse velocity corrections. B. G. Lee and R. J. Boain (JSR) 779
Performance of a modified downstream-cathode MPD thruster. James A. Burkhart (JSR, EN) 86

Spacecraft Sterilization

Planetary quarantine goes to work in the hospital. Michael D. Wardle, Alexander S. Irons, and Richard H. Green (A/A, June) 32

Spacecraft Temperature Control Systems

Development of a phase change thermal control device. B. G. Schelden and J. O. Golden (JSR, SYN) 99
Monte Carlo treatment of data uncertainties in thermal analysis. John R. Howell (JSR) 411
Prediction of long-term heat-pipe performance from accelerated life tests. E. Baker (AIAA J, TN) 1345

Spacecraft Tracking

Orbit determination by range-only data. Nguyen Duong and C. Byron Winn (JSR) 132
Application of sequential filtering to estimation of the interplanetary orbit of Mariner 9. Kenneth H. Rourke and James F. Jordan (JSR) 773
Nonlinear and adaptive estimation in re-entry. Andrew H. Jazwinski (AIAA J) 922
Fast triangular formulation of the square root filter. Neal A. Carlson (AIAA J) 1259
Mars lander position estimation in the presence of ephemeris biases. W. Thomas Blackshear, Robert H. Tolson, and Gail M. Day (JSR, EN) 284
Preliminary orbit determination for lunar satellites. E. R. Lancaster (AIAA J, TN) 558

Space Medicine (including Weightlessness, Radiation Effects, Psychology, etc.)

Developments in space medicine. Shields Warren (A/A, January) 18
Space systems summaries: Biosatellites. (A/A, October) 79

Space Station Systems, Manned

Early results from Skylab I. The Skylab Program Office (A/A, September) 22
Attitude control of a spinning Skylab. S. M. Seltzer, Gerhard Schweitzer, and Bernard Asner Jr. (JSR) 200
Spacecraft applications of high-temperature electrically conducting ceramics. Carl R. Halbach, Russell J. Page, and Owen J. McCaughey (JSR, EN) 415

STRUCTURAL MECHANICS AND MATERIALS

Aeroelasticity and Hydroelasticity

A perturbation solution of helicopter rotor flapping stability. Wayne Johnson (JA, SYN) 257
Nonlinear interaction of panel flutter with harmonic forcing excitation. Ching-chiang Kuo, Luigi Morino, and John Dugundji (AIAA J, SYN) 419
Natural vibration and flutter of cylindrically curved panels. Yuji Matsuzaki (AIAA J, SYN) 771
Unsteady aerodynamics of nonplanar wings and wing-tail configurations of elastic flight vehicles in supersonic flight. Jack Morito Ii and William S. Rowe (JA) 19
Dynamic instability of a cable in incompressible flow. William J. Anderson (AIAA J, SYN) 587
Effect of hypersonic nonlinear aerodynamic loading on panel flutter. Samuel C. McIntosh Jr. (AIAA J) 29
Fluctuating lift and moment coefficients for cascaded airfoils in a nonuniform compressible flow. Sanford Fleeter (JA) 93
Elastic launch vehicle response to sinusoidal gusts. Lars E. Ericsson, J. Peter Reding, and Rolf A. Guenther (JSR) 244
Theoretical vibration and flutter studies of point supported panels. E. H. Dowell (JSR) 389
Static aeroelasticity and the flying wing. Terrance A. Weisshaar and Holt Ashley (JA) 586
Lifting-surface theory for a wing oscillating in yaw and sideslip with an angle of attack. Koji Isogai and Teruo Ichikawa (AIAA J) 599
Aeroelastic instabilities of hingeless helicopter blades. Peretz Friedmann (JA) 623
Effect of steady state coning angle and damping on whirl flutter stability. Krishna Rao Venkata Kaza (JA) 664
Flutter of pairs of aerodynamically interfering delta wings. Richard R. Chipman, Frank J. Rauch, and Robert W. Hess (JA) 728
Aerodynamic boundary layer effects on flutter and damping of plates. E. H. Dowell (JA) 734
Generalized random forces for rectangular panels. R. Vaicaitis (AIAA J) 984
Linearized characteristics method for supersonic flow past vibrating shells. M. F. Platzer, C. W. Brix Jr., and K. A. Webster (AIAA J) 1302
A general method for flutter optimization. L. B. Gwin and R. F. Taylor (AIAA J) 1613
Relative magnitudes of stresses caused by static and dynamic launch vehicle loads. Lars E. Ericsson, J. Peter Reding, and Rolf A. Guenther (JSR, EN) 276
Optimization of a supersonic panel subject to a flutter constraint—A finite-element solution. Roy R. Craig Jr. (AIAA J, TN) 404
Elimination of degrees of freedom by structural splining. Hermann J. Hassig (AIAA J, TN) 405
Linear theory of stall flutter. Jon D. Raggett (AIAA J, TN) 733
Derivation of aerodynamic Kernel functions. E. H. Dowell and C. S. Ventres (AIAA J, TN) 1586
Comment on "Rates of change of flutter Mach number and flutter frequency." Kumar G. Bhatia and Carl S. Rudisill (AIAA J, TC) 1791
——Reply by author to K. G. Bhatia and C. S. Rudisill. S. S. Rao (AIAA J, TC) 1791

Hypervelocity Impact

On the dependence of materials erosion on environmental parameters at supersonic velocities. George F. Schmitt Jr. (JA) 705

Materials, Properties of

Effects of prestressing boron/epoxy prepreg on composite strength properties. George J. Mills and Richard J. Dauksys (AIAA J, SYN) 1459
Fracture phenomena in advanced fiber composite materials. H. J. Konish Jr., J. L. Swedlow, and T. A. Cruse (AIAA J) 40
Joining of boron/aluminum composites. Michael S. Hersh and Michael Featherby (JA) 99
Design criteria for inert or consumable polymer cartridge materials. Anthony San Miguel (JSR) 333
Plastic bonded, thermally stable explosive for an Apollo experiment. E. E. Kilmer (JSR) 463
Film reinforced multifastened mechanical joints in fibrous composites. G. E. Padawer (JA) 561
Induced plasticization—An inner bore surface treatment technique for solid-propellant rocket motors. Donald Saylak (JSR) 564
On the dependence of materials erosion on environmental parameters at supersonic velocities. George F. Schmitt Jr. (JA) 705
Effect of suspension-line viscous damping on parachute opening load amplification. Lamont R. Poole (JSR, EN) 92
Stress-strain relations for materials with different tension, compression yield strengths. Mark Hartzman (AIAA J, TN) 378
Material evaluation under direct rocket exhaust impingement. J. T. Fredericks and M. Shorr (JSR, EN) 533
Viscous damping characteristics of dacron parachute suspension-line cord. Lamont R. Poole (JSR, EN) 751
Failure criterion for a propellant of spherical solid rocket motor. Y. Toda, T. Nagaoka, Z. Ueno, Y. Okada, and T. Kunio (JSR, EN) 807
Experimental evidence of a couple-stress effect. Richard W. Perkins Jr. and David Thompson (AIAA J, TN) 1053
Elastic-plastic expansion of 6061-T6 aluminum rings. H. C. Walling and M. J. Forrestal (AIAA J, TN) 1196
Unified plastic yield criterion for ductile solids. Manoj Maitra, Kamalesh Majumdar, and Aniruddha Das (AIAA J, TN) 1428
Comment on "Film reinforced multifastened mechanical joints in fibrous composites." L. J. Hart-Smith (JA, TC) 573
Formulating propellants for fully case-bonded end-burning motors. H. E. Marsh Jr. and D. E. Udlock (JSR, ERR) 288
Photoelastic model analysis of sandwich beams. S. K. Bansal and C. L. Amba Rao (AIAA J, ERR) 1216

Structural Composite Materials (including Coatings)

Photoelastic analysis of an orthotropic ring under diametral compression. R. Prabhakaran (AIAA J, SYN) 777
Stability analysis of multilayer sandwich structures. T. P. Khatua and Y. K. Cheung (AIAA J, SYN) 1233
Effects of prestressing boron/epoxy prepreg on composite strength properties. George J. Mills and Richard J. Dauksys (AIAA J, SYN) 1459
Fracture phenomena in advanced fiber composite materials. H. J. Konish Jr., J. L. Swedlow, and T. A. Cruse (AIAA J) 40

Joining of boron/aluminum composites. Michael S. Hersh and Michael Featherby (JA) 99
Mechanical impedance of damped three-layered sandwich rings. Y. P. Lu, B. E. Douglas, and E. V. Thomas (AIAA J) 300
Experimental and theoretical investigation of stress wave attenuation by inclusions. J. C. S. Yang and C. Y. Tsui (AIAA J) 472
Nonlinear analysis of orthotropic skew plates. R. S. Alwar and N. Ramachandra Rao (AIAA J) 495
Film reinforced multifastened mechanical joints in fibrous composites. G. E. Padawer (JA) 561
Induced plasticization—An inner bore surface treatment technique for solid-propellant rocket motors. Donald Saylak (JSR) 564
On the dependence of materials erosion on environmental parameters at supersonic velocities. George F. Schmitt Jr. (JA) 705
Stresses in a fiber-reinforced elastic sheet containing a circular hole. C. I. Chang and H. D. Conway (AIAA J) 806
Elastic stability of biaxially loaded longitudinally stiffened composite structures. A. V. Viswanathan, M. Tamekuni, and Leonard L. Tripp (AIAA J) 1553
Buckling and vibration of unsymmetrically laminated cross-ply rectangular plates. Robert M. Jones (AIAA J) 1626
Analysis of bonded joints in vehicular structures. Richard M. Barker and Fritz Hatt (AIAA J) 1650
Material design concepts for filament-wound, graphite-graphite heatshields: Further analysis. Tommy R. Guess and Charles W. Bert (JSR, EN) 159
High-damping measurements and a preliminary evaluation of an equation for constrained-layer damping. Miin-Jeng Yan and E. H. Dowell (AIAA J, TN) 388
Thermal conductivity of mixed-composition plasma-sprayed coatings. R. L. Newman and W. C. Spicer (AIAA J, TN) 401
Edge buckling of cylindrical shells with low inplane shear moduli. Donald E. Johnson and Roland J. Boucher (AIAA J, TN) 551
Bending stresses and strains in anisotropic semi-infinite plates with arbitrary edge and surface loadings. Joseph Padovan (AIAA J, TN) 570
Differential equations for asymmetric bending of circular sandwich plates. Jao-Shiun Kao (AIAA J, TN) 573
Potential of graded coatings in vibration damping. K. R. Cross, W. R. Lull, R. L. Newman, and J. R. Cavanagh (JA, EN) 689
SH wave motions in laminated orthotropic plates. S. B. Dong and F. K. W. Tso (AIAA J, TN) 746
Free vibrations of multilayered composite plates. Ahmed K. Noor (AIAA J, TN) 1038
Stresses in an anisotropic half-space. Joseph Padovan (AIAA J, TN) 1194
Transverse shear in laminated plate theories. Pei Chi Chou and Joseph Carleone (AIAA J, TN) 1333
Vibration analysis of laminated plates and shells by a hybrid stress element. Sheng-taur Mau, Theodore H. H. Pian, and Pin Tong (AIAA J, TN) 1450
Elastic wave surfaces in heterogeneous anisotropic plates. A. S. D. Wang and D. L. Tuckmantel (AIAA J, TN) 1571
Transient stresses in laminated structures. Ying-San Lai (AIAA J, TN) 1761
Transverse vibrations related to stability of curved anisotropic plates. R. C. Fortier (AIAA J, TN) 1782
Comment on "Film reinforced multifastened mechanical joints in fibrous composites." L. J. Hart-Smith (JA, TC) 573
Graded thermal barrier—A new approach for turbine engine cooling. J. R. Cavanagh, K. R. Cross, R. L. Newman, and W. C. Spicer (JA, ERR) 192
Application of thermal barriers to high-temperature engine components. R. L. Newman, K. R. Cross, W. C. Spicer, H. D. Sheets, and T. D. Driskell (JA, ERR) 256
Photoelastic model analysis of sandwich beams. S. K. Bansal and C. L. Amba Rao (AIAA J, ERR) 1216

Structural Design, Optimal

NASTRAN: A preliminary discussion of user impacts. Joseph M. Carlson and Judson O. Harrison III (JA, SYN) 65
Automated design optimization of supersonic airplane wing structures under dynamic constraints. R. L. Fox, H. Miura, and S. S. Rao (JA, SYN) 321
Strongest column by the finite element displacement method. G. J. Simitses, M. P. Kamat, and C. V. Smith Jr. (AIAA J, SYN) 1231
Design, analysis, and tests of a structural prototype Viking aeroshell. Walter L. Heard Jr., Melvin S. Anderson, James Kent Anderson, and Michael F. Card (JSR) 56
Design criteria for inert or consumable polymer cartridge materials. Anthony San Miguel (JSR) 333
Design of stiffened cylinders to resist axial compression. L. W. Rehfield (JSR) 346
Minimum-mass design of multielement structures under a frequency constraint. David L. Sippel and William H. Warner (AIAA J) 483
Automated structural synthesis using a reduced number of design coordinates. R. M. Pickett Jr., M. F. Rubinstein and R. B. Nelson (AIAA J) 489
Design of graphite nosetips for ballistic re-entry. P. J. Schneider, R. D. Teter, W. D. Coleman, and R. M. Heath (JSR) 592
Fracture mechanics applications in materials selection, fabrication sequencing and inspection. William E. Krupp and David W. Hoeppner (JA) 682
Optimal vs the stiffened circular plate. George J. Simitses (AIAA J) 1409
Optimum design of stressed skin structures. Geoffrey G. Pope (AIAA J) 1545
A general method for flutter optimization. L. B. Gwin and R. F. Taylor (AIAA J) 1613
Optimum shell design. A. Mokhtar Salama and Ronald G. Ross Jr. (AIAA J, TN) 366
Optimization of a supersonic panel subject to a flutter constraint—A finite-element solution. Roy R. Craig Jr. (AIAA J, TN) 404
An automated procedure for determining the flutter velocity. C. S. Rudisill and J. L. Cooper (JA, EN) 442
Derivatives of eigensolutions for a general matrix. Subhash Garg (AIAA J, TN) 1191
A finite element method for the optimal design of variable thickness sheets. M. P. Rossow and J. E. Taylor (AIAA J, TN) 1566
Piecewise uniform optimum design for axial vibration requirement. Alain Cardou (AIAA J, TN) 1760
Transient stresses in laminated structures. Ying-San Lai (AIAA J, TN) 1761
Design of least weight structures for prescribed buckling load. Kalayya Narayana Murthy and Paul Christiano (AIAA J, TN) 1773
Thin-walled elements in truss synthesis. L. P. Felton, R. B. Nelson, and A. J. Bronowicki (AIAA J, TN) 1780
Comment on "Rates of change of flutter Mach number and flutter frequency." Kumar G. Bhatia and Carl S. Rudisill (AIAA J, TC) 1791
——Reply by author to K. G. Bhatia and C. S. Rudisill. S. S. Rao (AIAA J, TC) 1791
Thin-walled beams in frame synthesis. Richard B. Nelson and Lewis P. Felton (AIAA J, ERR) 896
Photoelastic model analysis of sandwich beams. S. K. Bansal and C. L. Amba Rao (AIAA J, ERR) 1216

Structural Dynamic Analysis

Response of simple spans to moving mass loads. James F. Wilson (AIAA J, SYN) 4
Measurement of system inertia tensors in precessing nonrigid systems. James P. Vanyo (AIAA J, SYN) 577
Dynamic instability of a cable in incompressible flow. William J. Anderson (AIAA J, SYN) 587
Nonstationary ascent wind analysis. L. J. Howell, B. J. Kuchta, and R. E. Barnes (JSR, SYN) 755
Forced motion of cylindrical shells: A comparison of shell theory with elasticity theory. L. I. Weingarten and H. Reismann (AIAA J, SYN) 769
Stall-flutter analysis. Lars E. Ericsson and J. Peter Reding (JA) 5
Vibration of thermally stressed plates with various boundary conditions. Cecil D. Bailey (AIAA J) 14
Rotor blade response to random loads: A direct time-domain approach. F. Y. M. Wan and C. Lakshmikantham (AIAA J) 24
Approximate analysis of containment/deflection ring responses to engine rotor fragment impact. Richard W.-H. Wu and Emmett A. Witmer (JA) 28
Static and dynamic analysis of mooring lines. Pin Yu Chang and Walter D. Pilkey (JH) 29
A dynamic analysis for elastic structures interacting with rotating machinery. Teh H. Lee (JA) 45
Hail damage to typical aircraft surfaces. Robert J. Hayduk (JA) 52
A comparative study of stability methods for flexible satellites. Leonard Meirovitch and Robert A. Calico (AIAA J) 91
Frequency response of a dynamic system with statistical damping. Paolo Caravani and William T. Thomson (AIAA J) 170
Theories for the dynamic response of laminated plates. Chin-Teh Sun and J. M. Whitney (AIAA J) 178
A general purpose computer program for the dynamic simulation of vehicle-guideway interactions. George Dailey, William C. Caywood, and James S. O'Connor (AIAA J) 278
Shape functions and the accuracy of arch finite elements. Isaac Fried (AIAA J) 287
Mechanical impedance of damped three-layered sandwich rings. Y. P. Lu, B. E. Douglas, and E. V. Thomas (AIAA J) 300
Analysis of airplane response to nonstationary turbulence including wing bending flexibility. Yoshinori Fujimori and Y. K. Lin (AIAA J) 334
——Analysis of airplane response to nonstationary turbulence including wing bending flexibility II. Yoshinori Fujimori and Y. K. Lin (AIAA J, TN) 1343
Theoretical vibration and flutter studies of point supported panels. E. H. Dowell (JSR) 389
Dynamic gust, landing, and taxi loads determination in the design of the L-1011. Warren A. Stauffer and Frederic M. Hoblit (JA) 459
Experimental and theoretical investigation of stress wave attenuation by inclusions. J. C. S. Yang and C. Y. Tsui (AIAA J) 472
Viscoelastoplastic response of axisymmetric shells under impulsive loadings. T. J. Chung and R. L. Eidson (AIAA J) 478
Minimum-mass design of multielement structures under a frequency

constraint. David L. Sippel and William H. Warner (AIAA J) 483
Effect of steady state coning angle and damping on whirl flutter stability. Krishna Rao Venkata Kaza (JA) 664
Active flutter control—An adaptable application to wing/store flutter. William E. Triplett, Hans-Peter F. Kappus, and Robert J. Landy (JA) 669
Nonlinear vibration of orthotropic triangular plates. C. P. Vendhan and B. L. Dhoopar (AIAA J) 704
Ultraharmonic motion of a viscously damped nonlinear beam. James A. Bennett (AIAA J) 710
Synthesis of shuttle vehicle damping using substructure test results. Daniel D. Kana and Stephen Huzar (JSR) 790
Dynamic nonlinear response of cylindrical shells to asymmetric pressure loading. Lawrence J. Mente (AIAA J) 793
Resonances in nonstationary, nonlinear, multidegree-of-freedom systems. Brij N. Agrawal and R. M. Evan-Iwanowski (AIAA J) 907
Interaction of an air-cushioned vehicle with an elastic guideway. Jerry H. Ginsberg, Edward C. Ting, and Joseph Genin (AIAA J) 980
Generalized random forces for rectangular panels. R. Vaicaitis (AIAA J) 984
Response of a rigid aircraft to nonstationary atmospheric turbulence. Joseph M. Verdon and Roy Steiner (AIAA J) 1086
Nonlinear transient responses of structures by the spatial finite-element method. Richard W.-H. Wu and Emmett A. Witmer (AIAA J) 1110
Nonlinear dynamics of hemispherical shells. Jerome M. Klosner and Ronald Longhitano (AIAA J) 1117
Mathematical modeling of spinning elastic bodies for modal analysis. Peter W. Likins, Frank J. Barbera, and Victor Baddeley (AIAA J) 1251
Large amplitude flexural vibration of simply supported skew plates. M. Sathyamoorthy and K. A. V. Pandalai (AIAA J) 1279
Evaluation of various analytical models for buckling and vibration of stiffened shells. David Bushnell (AIAA J) 1283
Vibration and buckling of shells under initial stresses. T. Y. Yang and H. W. Kim (AIAA J) 1525
Digital tuning as an exploratory tool in the modal analysis of randomly-loaded vibrating structures. D. R. Cruise and R. G. Christiansen (AIAA J) 1539
Vibrations of orthotropic parallelogramic plates with variable thickness. M. A. Dokainish and K. Kumar (AIAA J) 1618
Determination of free-body responses from constrained tests. Alex Berman and Nicholas Giansante (AIAAA J) 1622
Buckling and vibration of unsymmetrically laminated cross-ply rectangular plates. Robert M. Jones (AIAA J) 1626
Free vibrations of ring-stiffened toroidal shells. Theodore Balderes and Anthony E. Armenakas (AIAA J) 1637
Axisymmetric impulsive loading of shallow spherical shells. R. Palaninathan and V. X. Kunukkasseril (AIAA J) 1645
Finite element analysis of nonlinear vibration of beam columns. Chuh Mei (AIAA J, TN) 115
Stiffness matrix for a beam with an axial force. Dana Young (AIAA J, TN) 246
Synthesis of two discrete vibratory systems using eigenvalue modification. John Hallquist and Virgil Snyder (AIAA J, TN) 247
Curved finite elements by the method of initial strains. James A. Stricklin and Joe R. Tillerson (AIAA J, TN) 249
Derivatives of eigenvalues and eigenvectors in non-self-adjoint systems. R. H. Plaut and K. Huseyin (AIAA J, TN) 250
Normal mode solution to the equations of motion of a flexible airplane. Peter D. Schmitz (JA, EN) 318
Stress-strain relations for materials with different tension, compression yield strengths. Mark Hartzman (AIAA J, TN) 378
Use of modal solutions in elastic wave propagation problems. Mathias J. Sagartz (AIAA J, TN) 384
Elimination of degrees of freedom by structural splining. Hermann J. Hassig (AIAA J, TN) 405
An automated procedure for determining the flutter velocity. C. S. Rudisill and J. L. Cooper (JA, EN) 442
Galerkin finite element method for vibration problems. K. S. R. K. Prasad and A. V. Krishna Murty (AIAA J, TN) 544
Fuel tank wall response to hydraulic ram during the shock phase. R. E. Ball, H. L. Power, and A. E. Fuhs (JA, EN) 571
Forced motion of lumped mass systems including the effect of axial force. Paul X. Bellini (JSR, EN) 610
Potential of graded coatings in vibration damping. K. R. Cross, W. R. Lull, R. L. Newman, and J. R. Cavanagh (JA, EN) 689
Design of crashworthy aircraft cabins based on dynamic buckling. Cary A. Fisher and Charles W. Bert (JA, EN) 693
SH wave motions in laminated orthotropic plates. S. B. Dong and F. K. W. Tso (AIAA J, TN) 746
Lowest critical velocity of rotating shafts. Bruno Atzori and Graziano Curti (AIAA J, TN) 885
Reduction of structural frequency equations. Robert L. Kidder (AIAA J, TN) 892
An assumed stress hybrid finite element model for linear elastodynamic analysis. Satyanadham Atluri (AIAA J, TN) 1028
Coupled thermally induced vibrations of beams. A. G. Seibert and J. S. Rice (AIAA J, TN) 1033
Constrained shell vibrations. Robert Greif and Ho Chung (AIAA J, TN) 1049
Dynamically-induced large deformations of multilayer, variable thickness shells. John W. Leech, Emmett A. Witmer, and Luigi Morino (AIAA J, TN) 1189
Derivatives of eigensolutions for a general matrix. Subhash Garg (AIAA J, TN) 1191
Elastic-plastic expansion of 6061-T6 aluminum rings. H. C. Walling and M. J. Forrestal (AIAA J, TN) 1196
Flexibility coefficients for bending of a disk under sinusoidal edge loading. Joseph A. Dopkin and Terry E. Shoup (AIAA J, TN) 1339
Velocity of a stress wave superimposed on the initial plastic stress state of a rod. D. A. Hunt (AIAA J, TN) 1342
Vibration and stability of nondivergent elastic systems. C. Sundararajan (AIAA J, TN) 1418
Vibration of orthotropic circular plates with a concentric isotropic core. H. K. Woo, P. G. Kirmser, and C. L. Huang (AIAA J, TN) 1421
Stability of the De Vogelaere method for timewise numerical integration. Richard W.-H. Wu and Emmett A. Witmer (AIAA J, TN) 1432
Vibration of beams with overhangs. K. Singa-Rao and C. L. Amba-Rao (AIAA J, TN) 1445
Vibration analysis of laminated plates and shells by a hybrid stress element. Sheng-taur Mau, Theodore H. H. Pian, and Pin Tong (AIAA J, TN) 1450
Elastic wave surfaces in heterogeneous anisotropic plates. A. S. D. Wang and D. L. Tuckmantel (AIAA J, TN) 1571
Piecewise uniform optimum design for axial vibration requirement. Alain Cardou (AIAA J, TN) 1760
Transient stresses in laminated structures. Ying-San Lai (AIAA J, TN) 1761
Transverse vibrations related to stability of curved anisotropic plates. R. C. Fortier (AIAA J, TN) 1782
Comment on "Thermally induced vibration and flutter of a flexible boom." A. Das (JSR, TC) 288
——Reply by author to A. Das. Yi-Yuan Yu (JSR, TC) 288
Comment on "Discrete element idealization of an incompressible liquid for vibration analysis" and "Discrete element structural theory of fluids." Robert D. Cook (AIAA J, TC) 766
Comment on "Lateral vibration and stability relationship of elastically restrained circular plates." K. Singa Rao and C. L. Amba Rao (AIAA J, TC) 1056
Comment on "Dynamic response of a cylinder to a side pressure pulse." M. J. Forrestal, M. J. Sagartz, and H. C. Walling (AIAA J, TC) 1355
——Reply by author to M. J. Forrestal, M. J. Sagartz, and H. C. Walling. Robert Winter (AIAA J, TC) 1355
Comment on "Finite elements for axisymmetric solids under arbitrary loadings with nodes on origin." Karl E. Buck (AIAA J, TC) 1357
——Reply by author to K. E. Buck. Ted Belytschko (AIAA J, TC) 1358
Comment on "Lateral vibration and stability relationship of elastically restrained circular plates." Alexander H. Flax (AIAA J, TC) 1599
Reply by authors to A. H. Flax, K. Singa Rao, and C. L. Amba-Rao (AIAA J, TC) 1599

Structural Stability Analysis

Strongest column by the finite element displacement method. G. J. Simitses, M. P. Kamat, and C. V. Smith Jr. (AIAA J, SYN) 1231
Stability analysis of multilayer sandwich structures. T. P. Khatua and Y. K. Cheung (AIAA J, SYN) 1233
Finite element structural analysis of local instability. J. S. Przemieniecki (AIAA J) 33
Design, analysis, and tests of a structural prototype Viking aeroshell. Walter L. Heard Jr., Melvin E. Anderson, James Kent Anderson, and Michael F. Card (JSR) 56
Buckling of laminated anisotropic imperfect circular cylinders under axial compression. R. C. Tennyson and D. B. Muggeridge (JSR) 143
Design of stiffened cylinders to resist axial compression. L. W. Rehfield (JSR) 346
Nonlinear finite element analysis of sandwich shells of revolution. Parviz Sharifi and E. P. Popov (AIAA J) 715
Stability of a stochastically excited nonlinear cylindrical shell. J. A. Lepore and R. A. Stoltz (AIAA J) 801
Stability of discretely stringer-stiffened cylindrical shells. James Ting-Shun Wang and Yu-Jyi Lin (AIAA J) 810
Evaluation of various analytical models for buckling and vibration of stiffened shells. David Bushnell (AIAA J) 1283
Nonsymmetric buckling of cylinders with axisymmetric thermal discontinuities. David Bushnell (AIAA J) 1292
Optimal vs the stiffened circular plate. George J. Simitses (AIAA J) 1409
Vibration and buckling of shells under initial stresses. T. Y. Yang and H. W. Kim (AIAA J) 1525
Finite element analysis of the postbuckling behavior of structures. Akin Ecer (AIAA J) 1532
Elastic stability of biaxially loaded longitudinally stiffened composite structures. A. V. Viswanathan, M. Tamekuni, and Leonard L. Tripp (AIAA J) 1553
Buckling analysis of hydrostatically loaded conical shells by the collocation method. A. Shalev, M. Baruch, and E. Nissim (AIAA J) 1603
Postbuckling of an annulus. Chi-lung Huang (AIAA J) 1608
Buckling and vibration of unsymmetrically laminated cross-ply rectangular plates. Robert M. Jones (AIAA J) 1626
Buckling of orthotropic circular plates. A. S. J. Swamidas and Vincent X. Kunukkasseril (AIAA J) 1633

Dynamic buckling of a rectangular orthotropic plate. R. E. Ekstrom (AIAA J) 1655
Finite deflection of a deep arch with boundary imperfections. Arup Chattopadhyay and Gurbachan Dhatt (AIAA J, TN) 235
Stiffness matrix for a beam with an axial force. Dana Young (AIAA J, TN) 246
Curved finite elements by the method of initial strains. James A. Stricklin and Joe R. Tillerson (AIAA J, TN) 249
Self-weight-buckling of vertical circular cylindrical shells. D. J. Johns (AIAA J, TN) 392
Buckling of a simply-supported beam between two unattached elastic foundations. Alan Burkhard and Warren Young (AIAA J, TN) 406
Edge buckling of cylindrical shells with low inplane shear moduli. Donald E. Johnson and Roland J. Boucher (AIAA J, TN) 551
Forced motion of lumped mass systems including the effect of axial force. Paul X. Bellini (JSR, EN) 610
Buckling of orthotropic, curved, sandwich panels in shear and axial compression. Otha B. Davenport and Charles W. Bert (JA, EN) 632
Postbuckling behavior of orthotropic skew plates. K. A. V. Pandalai and M. Sathyamoorthy (AIAA J, TN) 731
Advanced elastic postbuckling analysis by a perturbation procedure. L. W. Rehfield (AIAA J, TN) 759
Determination of stiffness and critical loads of a circular plate from a simple bending test. George J. Simitses (AIAA J, TN) 1208
Vibration and stability of nondivergent elastic systems. C. Sundararajan (AIAA J, TN) 1418
Buckling of segments of toroidal shells. V. I. Weingarten, D. R. Veronda, and S. S. Saghera (AIAA J, TN) 1422
Unified plastic yield criterion for ductile solids. Manoj Maitra, Kamalesh Majumdar, and Aniruddha Das (AIAA J, TN) 1428
Buckling of toroidal shells under hydrostatic pressure. Peter F. Jordan (AIAA J, TN) 1439
Stability analysis of cylinders with circular cutouts. B. O. Almroth, F. A. Brogan, and M. B. Marlowe (AIAA J, TN) 1582
Effect of higher order terms in certain nonlinear finite element models. J. T. Oden, H. U. Akay, and C. P. Johnson (AIAA J, TN) 1589
Design of least weight structures for prescribed buckling load. Kalayya Narayana Murthy and Paul Christiano (AIAA J, TN) 1773
Transverse vibrations related to stability of curved anisotropic plates. R. C. Fortier (AIAA J, TN) 1782
Comment on "Thermally induced vibration and flutter of a flexible boom." A. Das (JSR, TC) 288
——Reply by author to A. Das. Yi-Yuan Yu (JSR, TC) 288
Comment on "Lateral vibration and stability relationship of elastically restrained circular plates." K. Singa Rao and C. L. Amba Rao (AIAA J, TC) 1056
Potential energy of a normal pressure field acting on an arbitrary shell. Izhak Sheinman and Yair Tene (AIAA J, TC) 1216
Comment on "Lateral vibration and stability relationship of elastically restrained circular plates." Alexander H. Flax (AIAA J, TC) 1599
——Reply by authors to A. H. Flax. K. Singa Rao and C. L. Amba-Rao (AIAA J, TC) 1599

Structural Static Analysis

Stress distribution and displacements in a lubricated elastic seal. F. Edward Ehlers (JA, SYN) 3
Photoelastic analysis of an orthotropic ring under diametral compression. R. Prabhakaran (AIAA J, SYN) 777
Static and dynamic analysis of mooring lines. Pin Yu Chang and Walter D. Pilkey (JH) 29
Bending of nonuniform plates with asymmetric thickness variation—Inclusion of shear deformation. S. B. Gulati and O. Ozaltin (AIAA J) 174
Shape functions and the accuracy of arch finite elements. Isaac Fried (AIAA J) 287
Evaluation of solution procedures for material and/or geometrically nonlinear structural analysis. James A. Stricklin, Walter E. Haisler, and Walter A. Von Riesemann (AIAA J) 292
Explicit addition of rigid-body motions in curved finite elements. Ghislain A. Fonder and Ray W. Clough (AIAA J) 305
Nonlinear analysis of orthotropic skews plates. R. S. Alwar and N. Ramachandra Rao (AIAA J) 495
Nonlinear finite element analysis of sandwich shells of revolution. Parviz Sharifi and E. P. Popov (AIAA J) 715
Analysis of centrifugal stresses in anisotropic viscoelastic cylinder. S. R. Moghe (AIAA J) 723
Stresses in a fiber-reinforced elastic sheet containing a circular hole. C. I. Chang and H. D. Conway (AIAA J) 806
Inelastic buckling of eccentrically loaded columns. N. C. Huang (AIAA J) 974
Optimal vs the stiffened circular plate. George J. Simitses (AIAA J) 1409
A certain type of ill-conditioned stiffness matrix. Ki-Shun Chu (AIAA J, TN) 106
Stiffness matrix for a beam with an axial force. Dana Young (AIAA J, TN) 246
Curved finite elements by the method of initial strains. James A. Stricklin and Joe R. Tillerson (AIAA J, TN) 249
Stress-strain relations for materials with different tension, compression yield strengths. Mark Hartzman (AIAA J, TN) 378
Generalized hybrid stress finite-element models. John P. Wolf (AIAA J, TN) 386
Improved hardening theory for cyclic plasticity. Robert G. Vos and William H. Armstrong (AIAA J, TN) 400
Elimination of degrees of freedom by structural splining. Hermann J. Hassig (AIAA J, TN) 405
Differential equations for asymmetric bending of circular sandwich plates. Jao-Shiun Kao (AIAA J, TN) 573
Finite deflection of a shallow spherical membrane. Dallas G. Smith, John Peddieson Jr., and Chin-Jer Chung (AIAA J, TN) 736
Effect of out-of-planeness of membrane quadrilateral finite elements. Raphael T. Haftka and James C. Robinson (AIAA J, TN) 742
——Effect of out-of-planeness of membrane quadrilateral finite elements. Raphael T. Haftka and James C. Robinson (AIAA J, ERR) 1792
Determination of stiffness and critical loads of a circular plane from a simple bending test. George J. Simitses (AIAA J, TN) 1208
Inextensional approximations in cylindrical shells. James H. Williams Jr. (AIAA J, TN) 1213
Limitation of boundary residual methods. J. P. Dugan (AIAA J, TN) 1330
Transverse shear in laminated plate theories. Pei Chi Chou and Joseph Carleone (AIAA J, TN) 1333
Deflection function for the asymmetrical bending of circular plates. Gerard C. Pardoen (AIAA J, TN) 1341
Introduction of shear deformations into a thin plate displacement formulation. Bruce M. Irons and Abdur Razzaque (AIAA J, TN) 1438
Effect of higher order terms in certain nonlinear finite element models. J. T. Oden, H. U. Akay, and C. P. Johnson (AIAA J, TN) 1589
Comment on "Analysis of a clamped skew plate under uniform loading." William A. Nash (AIAA J, TC) 255
Potential energy of a normal pressure field acting on an arbitrary shell. Izhak Sheinman and Yair Tene (AIAA J, TC) 1216
Comment on "Finite elements for axisymmetric solids under arbitrary loadings with nodes on origin." Karl E. Buck (AIAA J, TC) 1357
——Reply by author to K. E. Buck. Ted Belytschko (AIAA J, TC) 1358
Plane stress analysis of an annular disk with distorted inner hole. Thomas J. Kim (AIAA J, ERR) 768

Thermal Stresses

Vibration of thermally stressed plates with various boundary conditions. Cecil D. Bailey (AIAA J) 14
——Thermal shielding by subliming volume reflectors in convective and intense radiative environments. John T. Howe, Michael J. Green, and Kenneth C. Weston (AIAA J) 989
——Thermal shielding by subliming volume reflectors in convective and intense radiative environments. John T. Howe, Michael J. Green, and Kenneth C. Weston (AIAA J, ERR) 1600
Nonsymmetric buckling of cylinders with axisymmetric thermal discontinuities. David Bushnell (AIAA J) 1292
Material design concepts for filament-wound, graphite-graphite heatshields: Further analysis. Tommy R. Guess and Charles W. Bert (JSR, EN) 159
Failure criterion for a propellant of spherical solid rocket motor. Y. Toda, T. Nagaoka, Z. Ueno, Y. Okada, and T. Kunio (JSR, EN) 807
Coupled thermally induced vibrations of beams. A. G. Seibert and J. S. Rice (AIAA J, TN) 1033
Dynamically-induced large deformations of multilayer, variable thickness shells. John W. Leech, Emmett A. Witmer, and Luigi Morino (AIAA J, TN) 1189
Comment on "Thermally induced vibration and flutter of a flexible boom." A. Das (JSR, TC) 288
——Reply by author to A. Das. Yi-Yuan Yu (JSR, TC) 288

THERMOPHYSICS AND THERMOCHEMISTRY

Atomic, Molecular, and Plasma Properties

Looking at the solar system in the far-ultraviolet. Robert R. Meier (A/A, October) 18
Prospecting for energy. Jerry Grey (A/A, August) 24
Electrical conductivity and total emission coefficient of air plasma. P. W. Schreiber, A. M. Hunter II, and K. R. Benedetto (AIAA J) 815
Investigation of the discharge structure in a noble gas alkali MHD generator plasma: Part I. G. Brederlow, K. J. Witte, and H. Zinko (AIAA J) 1065
Investigation of the discharge structure in a rare gas alkali MHD generator plasma: Part II. G. Brederlow and K. J. Witte (AIAA J) 1072
Influence of gradient of velocity upon the resonant radiative transfer in plasma flows. P. Valentin, M. Pinegre, and M. Terrier (AIAA J) 1698
Chemical modeling experimental facility. A. Mandl, S. A. Fogelson, and S. D. Hester (AIAA J) 1711
Ion intensity measurement in a plasma reaction channel. J. H. Mullen, J. M. Madson, and L. N. Medgyesi-Mitschang (AIAA J, TN) 1031
New thermodynamic functions for the C_3 molecule. W. E. Pearson and W.

C. Davy (AIAA J, TN) 1207
Nitrogen temperature determination in arc tunnel air flows. S. S. Lazdinis and R. F. Carpenter (AIAA J, TN) 1416
CO_2 laser radiation absorption in SF_6-air mixtures. John D. Anderson Jr., Jerry L. Wagner, and Joseph Knott (AIAA J, TN) 1424

Heat Conduction

Plastic set of smooth large radii of curvature thermal conductance specimens at light loads. Daniel J. McKinzie Jr. (AIAA J, SYN) 263
Heat conduction in slabs with uniform heat sources and radiative boundary conditions. Benjamin T. F. Chung and L. T. Yeh (JSR, SYN) 483
Additives for heat-transfer reduction in the propellant combinations N_2O_4-MMH and N_2O_4—A-50. K. Berman, T. Albanese, A. Blessing, and N. Roth (JSR) 493
Nonlinear least squares—An aid to thermal property determination. D. M. Curry and S. D. Williams (AIAA J) 670
Electrical conductivity and total emission coefficient of air plasma. P. W. Schreiber, A. M. Hunter II, and K. R. Benedetto (AIAA J) 815
Thermal shielding by subliming volume reflectors in convective and intense radiative environments. John T. Howe, Michael J. Green, and Kenneth C. Weston (AIAA J) 989
——Thermal shielding by subliming volume reflectors in convective and intense radiative environments. John T. Howe, Michael J. Green, and Kenneth C. Weston (AIAA J, ERR) 1600
Integral method for nonlinear transient heat transfer in a semi-infinite solid. Benjamin T. F. Chung and L. T. Yeh (JSR, EN) 88
——Integral method for nonlinear transient heat transfer in a semi-infinite solid. Benjamin T. F. Chung and L. T. Yeh (JA, ERR) 688
A temperature extrapolation method for hollow cylinders. Murray Imber (AIAA J, TN) 117
Thermal conductivity of mixed-composition plasma-sprayed coatings. R. L. Newman and W. C. Spicer (AIAA J, TN) 401
Transient temperature distribution of an anisotropic half space. Joseph Padovan (AIAA J, TN) 565
Optimal skin thickness variations for active cooled panels. R. D. Wagner (JA, EN) 572
Modified separable Kernel method for heat conduction with a nonlinear boundary condition. A. L. Crosbie and S. K. Banerjee (AIAA J, TN) 744
Optimum rectangular radiative fins having temperature-variant properties. A. Campo and H. S. Wolko (JSR, EN) 811
Coupled thermally induced vibrations of beams. A. G. Seibert and J. S. Rice (AIAA J, TN) 1033
Reflectance and unsteady temperature distribution of diffuse reflectors. Kenneth C. Weston and R. S. Reddy (AIAA J, TN) 1775

Liquid and Solid Thermophysical Properties

Material Ablation

Effect of additives on ablation of phenolic-silica composites. John D. Chidley and J. D. Seader (JSR) 7
Heat-transfer and ablation-rate correlations for re-entry heat-shield and nosetip applications. Kurt E. Putz and Eugene P. Bartlett (JSR) 15
Graphite ablation in combined convective and radiative heating. Roy M. Wakefield and David L. Peterson (JSR) 149
PAET entry heating and heat protection experiment. Nick S. Vojvodich (JSR) 181
Ablation of ATJ graphite at high temperatures. John H. Lundell and Robert R. Dickey (AIAA J) 216
Decomposition rate of a phenolic resin. William M. Bishop and W. J. Minkowycz (AIAA J) 438
Effect of thermally expanding surfaces on aerodynamic roll torques for cones. John B. McDevitt (AIAA J) 505
Verification of a comprehensive thrust chamber compatibility model for liquid rocket engines. W. L. Pritz and R. J. Schoner (JSR) 558
Similarity analysis for the surface ablation of silica-reinforced composites. Chia-Lung Hsieh and J. D. Seader (JSR) 797
Oxidation of Poco AXF-Q1 graphite in air. John A. Segletes (JSR) 803
A surface flow approach for predicting crosshatch patterns. R. M. Grabow and C. O. White (AIAA J) 841
Ablation and radiation coupled viscous hypersonic shock layers. Carl D. Engel, Richard C. Farmer, and Ralph W. Pike (AIAA J) 1174
Surface ablation of silica-reinforced composites. Chia-Lung Hsieh and J. D. Seader (AIAA J) 1181
Crosshatch surface patterns—Comparison of experiment with theory. C. O. White and R. M. Grabow (AIAA J) 1316
Stagnation region radiative heating with steady-state ablation during Venus entry. Kenneth Sutton and R. A. Falanga (JSR, EN) 155
Material evaluation under direct rocket exhaust impingement. J. T. Fredericks and M. Shorr (JSR, EN) 533
A mechanism for ablation-induced spin-up. Lars E. Ericsson and Donald A. Price Jr. (AIAA J, TN) 567
Laser activated, model surface recession compensator system for testing ablative materials. Ronald A. Williamson, W. A. Rinehart, and Ronald R. Williams (JSR, EN) 684
Modeling sublimation of a charring ablator. John F. Balhoff and Ralph W. Pike (JSR, EN) 822
Assessment of chemical nonequilibrium for massively ablating graphite. Kenneth A. Lincoln, John T. Howe, and Tsong-Mou Liu (AIAA J, TN) 1198
New thermodynamic functions for the C_3 molecule. W. E. Pearson and W. C. Davy (AIAA J, TN) 1207
Role of the anelastic behavior of the ablation material on cross-hatching. Hans W. Stock (AIAA J, ERR) 1056

Radiation and Radiative Heat Transfer

Heat conduction in slabs with uniform heat sources and radiative boundary conditions. Benjamin T. F. Chung and L. T. Yeh (JSR, SYN) 483
Variational solution to the radiative equation by the use of a step function II. Extension to nonlinear case by iteration method. Kenneth K. Yoshikawa (AIAA J) 19
Application of the Monte Carlo method for radiation exchange in spacecraft. Jochen Doenecke (JSR) 652
Electrical conductivity and total emission coefficient of air plasma. P. W. Schreiber, A. M. Hunter II, and K. R. Benedetto (AIAA J) 815
Thermal shielding by subliming volume reflectors in convective and intense radiative environments. John T. Howe, Michael J. Green, and Kenneth C. Weston (AIAA J) 989
——Thermal shielding by subliming volume reflectors in convective and intense radiative environments. John T. Howe, Michael J. Green, and Kenneth C. Weston (AIAA J, ERR) 1600
Emittance of semi-infinite absorbing and isotropically scattering medium with refractive index greater than unity. B. F. Armaly, T. T. Lam, and A. L. Crosbie (AIAA J) 1498
Influence of gradient of velocity upon the resonant radiative transfer in plasma flows. P. Valentin, M. Pinegre, and M. Terrier (AIAA J) 1698
Integral method for nonlinear transient heat transfer in a semi-infinite solid. Benjamin T. F. Chung and L. T. Yeh (JSR, EN) 88
——Integral method for nonlinear transient heat transfer in a semi-infinite solid. Benjamin T. F. Chung and L. T. Yeh (JA, ERR) 688
Density inhomogeneity in a laser cavity due to energy release. Allen E. Fuhs (AIAA J, TN) 374
Modified separable Kernel method for heat conduction with a nonlinear boundary condition. A. L. Crosbie and S. K. Banerjee (AIAA J, TN) 744
Optimum rectangular radiative fins having temperature-variant properties. A. Campo and H. S. Wolko (JSR, EN) 811
Emittance of an isothermal, isotropically scattering medium. A. L. Crosbie (AIAA J, TN) 1203
CO_2 laser radiation absorption in SF_6-air mixtures. John D. Anderson Jr., Jerry L. Wagner, and Joseph Knott (AIAA J, TN) 1424
Annular ring view factors. R. L. Reid and J. S. Tennant (AIAA J, TN) 1446
Reflection function for an isotropically scattering finite medium. A. L. Crosbie (AIAA J, TN) 1448
Reflectance and unsteady temperature distribution of diffuse reflectors. Kenneth C. Weston and R. S. Reddy (AIAA J, TN) 1775
Eigenvalues and eigenvectors for solutions to the radiative transport equations. J. A. Roux, D. C. Todd, and A. M. Smith (AIAA J, ERR) 767

Thermal Modeling and Experimental Thermal Simulation

Development of a phase change thermal control device. B. G. Schelden and J. O. Golden (JSR, SYN) 99
Thermal performance evaluation of RSI panel gaps for space shuttle orbiter. R. A. Brewer, A. R. Saydah, D. E. Nestler, and D. E. Florence (JSR) 23
Ion thruster thermal characteristics and performance. L. Wen, J. D. Crotty, and E. V. Pawlik (JSR) 35
Graphite ablation in combined convective and radiative heating. Roy M. Wakefield and David L. Peterson (JSR) 149
Monte Carlo treatment of data uncertainties in thermal analysis. John R. Howell (JSR) 411
Thermal scale modeling of radiation-conduction-convection systems. Roger L. Shannon (JSR) 485
Cryogenic liquid O_2/H_2 reaction control systems for space shuttle. P. J. Kelly, H. B. McKee, and T. C. Patten (JSR) 496
Design of graphite nosetips for ballistic re-entry. P. J. Schneider, R. D. Teter, W. D. Coleman, and R. M. Heath (JSR) 592
Application of the Monte Carlo method for radiation exchange in spacecraft. Jochen Doenecke (JSR) 652
Nonlinear least squares—An aid to thermal property determination. D. M. Curry and S. D. Williams (AIAA J) 670
Spacecraft thermal environments. John J. Chapter (JSR, EN) 93
Prediction of long-term heat-pipe performance from accelerated life tests. E. Baker (AIAA J, TN) 1345
Graded thermal barrier—A new approach for turbine engine cooling. J. R. Cavanagh, K. R. Cross, R. L. Newman, and W. C. Spicer (JA, ERR) 192
Application of thermal barriers to high-temperature engine components. R. L. Newman, K. R. Cross, W. C. Spicer, H. D. Sheets, and T. D. Driskell (JA, ERR) 256

Thermal Surface Properties

Plastic set of smooth large radii of curvature thermal conductance specimens at light loads. Daniel J. McKinzie Jr. (AIAA J, SYN) 263
Additives for heat-transfer reduction in the propellant combinations N_2O_4-MMH and N_2O_4—A-50. K. Berman, T. Albanese, A. Blessing, and N. Roth (JSR) 493
Emittance of semi-infinite absorbing and isotropically scattering medium with refractive index greater than unity. B. F. Armaly, T. T. Lam, and A. L. Crosbie (AIAA J) 1498
Emittance of an isothermal, isotropically scattering medium. A. L. Crosbie (AIAA J, TN) 1203
Reflection function for an isotropically scattering finite medium. A. L. Crosbie (AIAA J, TN) 1448

Thermochemistry and Chemical Kinetics

Entropy in nonequilibrium nozzle flows of vibrationally relaxing diatomic gases. Ryuji Ishii (AIAA J, SYN) 137
Theoretical and measured electron-density distributions at high altitudes. Sang-Wook Kang, W. Linwood Jones and Michael G. Dunn (AIAA J) 141
Ultraviolet radiation from the bow shock of a sphere during atmospheric re-entry. Leonilda A. Farrow and Arthur H. Fitch (AIAA J) 272
Decomposition rate of a phenolic resin. William M. Bishop and W. J. Minkowycz (AIAA J) 438
Measurement of emissions from jet engines in altitude test cells. J. Lloyd Grissom (JA) 475
Effect of surface catalytic activity on stagnation heat-transfer rates. L. A. Anderson (AIAA J) 649
Antenna admittance determination of electron density. Michael G. Dunn, Richard J. Blum, Calvin T. Swift, Fred B. Beck, and William L. Grantham (AIAA J) 1018
Atomic recombination rate determination through heat-transfer measurement. Chul Park, Lewis A. Anderson, and Robert E. Sheldahl (AIAA J, TN) 372
Modeling sublimation of a charring ablator. John F. Balhoff and Ralph W. Pike (JSR, EN) 822
Ion intensity measurement in a plasma reaction channel. J. H. Mullen, J. M. Madson, and L. N. Medgyesi-Mitschang (AIAA J, TN) 1031
Assessment of chemical nonequilibrium for massively ablating graphite. Kenneth A. Lincoln, John T. Howe, and Tsong-Mou Liu (AIAA J, TN) 1198

AUTHOR INDEX

Abu-Romia, M. M. (AIAA J, TN; see Pyare, R.)
Aceto, L. D. (AIAA J; see Kollrack, R.)
Acosta, A. J. (JSR; see Brennen, C.)
Acton, L. L., Griggs, M., Hall, G. D., Ludwig, C. B., Malkmus, W., Hesketh, W. D., and Reichle, H. Remote measurement of carbon monoxide by a gas filter correlation instrument. (AIAA J, SYN) 899
Adams, Roy W. (JSR; see Pawlik, Eugene V.)
Agrawal, Brij N. and Evan-Iwanowski, R. M. Resonances in nonstationary, nonlinear, multidegree-of-freedom systems. (AIAA J) 907
Akay, H. U. (AIAA J, TN; see Oden, J. T.)
Akey, Norman D. (JSR; see Schroeder, Lyle C.)
Albanese, T. (JSR; see Berman, K.)
Alber, Irwin E., Bacon, John W., Masson, Bruce S., and Collins, Donald J. An experimental investigation of turbulent transonic viscous-inviscid interactions. (AIAA J) 620
Albers, James A. Application of compressibility correction to calculation of flow in inlets. (JA, EN) 441
Aldrich, G. T. and Krabill, W. B. An application of Kalman techniques to aircraft and missile radar tracking. (AIAA J) 932
Ali, S. Firasat (AIAA J, TN; see Tucker, Henry J.)
Allemann, R. A. (AIAA J, SYN; see Lancaster, J. E.)
Allen, Jerry M. Evaluation of Preston tube calibration equations in supersonic flow. (AIAA J, SYN) 1461
Allred, A. P. (AIAA J; see Hall, B. M.)
Almroth, B. O., Brogan, F. A., and Marlowe, M. B. Stability analysis of cylinders with circular cutouts. (AIAA J, TN) 1582
Alston, D. W. (AIAA J, TN; see Bushnell, D. M.)
Alwar, R. S. and Rao, N. Ramachandra Nonlinear analysis of orthotropic skew plates. (AIAA J) 495
Amba-Rao, C. L. (AIAA J, TN; see Singa-Rao, K.)
——(AIAA J, TC; see Rao, K. Singa)
——(AIAA J, ERR; see Bansal, S. K.)
Amick, James L. and Masoud, Tariq Reattachment of a separated boundary layer to a convex surface. (AIAA J, TN) 1426
Amos, Robert G., Maples, Glennon, and Dyer, David F. Thrust of an air-augmented waterjet. (JH) 64
Anchev, Atanas A. Equilibrium attitude transitions of a three-rotor gyrostat in a circular orbit. (AIAA J) 467
Anderson, D. C., Berger, R. L., and Hess, J. R., Jr. Maneuver load control and relaxed static stability applied to a contemporary fighter aircraft. (JA) 112
Anderson, J. D., Jr. (JSR, SYN; see Vamos, J. S.)
——**Wagner, Jerry L., and Knott, Joseph** CO_2 laser radiation absorption in SF_6-air mixtures. (AIAA J, TN) 1424
Anderson, James Kent (JSR; see Heard, Walter L., Jr.)
Anderson, L. A. Effect of surface catalytic activity on stagnation heat-transfer rates. (AIAA J) 649
——(AIAA J, TN; see Park, Chul)
Anderson, Melvin S. (JRS; see Heard, Walter L., Jr.)
Anderson, William J. Dynamic instability of a cable in incompressible flow. (AIAA J, SYN) 587
Ando, Shigenori (JA; see Mamada, Hiroshi)
Andrus, Jan F. and Greenleaf, William G. First-order corrections to approximate solutions to two-point boundary-condition problems. (AIAA J) 1517
Ankarswärd, Björn Missile liquid rocket propulsion unit VR35 and some of its development problems. (JSR, EN) 604
Anyiwo, Joshua C. A force field theory: Part I. Laminar flow instability. (AIAA J) 43
Armaly, B. F., Lam, T. T., and Crosbie, A. L. Emittance of semi-infinite absorbing and isotropically scattering medium with refractive index greater than unity. (AIAA J) 1498
Armenakas, Anthony E. (AIAA J; see Balderes, Theodore)
Armstrong, W. C. (JSR; see Bauer, R. C.)
Armstrong, William H. (AIAA J, TN; see Vos, Robert G.)
Arnold, John W. (JA; see Cooksey, James M.)
Ashburn, Edward V. (JA, EN; see Waco, David E.)
Ashley, Holt (JA; see Weisshaar, Terrance A.)
Ashwood, Peter F. An altitude test facility for large turbofan engines. (JA) 468
Asner, Bernard, Jr. (JSR; see Seltzer, S. M.)
Asnin, Scott K. and Roos, Darrell G. Mission design and navigation for a 1977–1978 Venus swingby/Mercury orbiter. (JSR) 631
Asseo, Sabi J. Decoupling of a class of nonlinear systems and its application to an aircraft control problem. (JA) 739
Atluri, Satyanadham An assumed stress hybrid finite element model for linear elastodynamic analysis. (AIAA J, TN) 1028
Attiyeh, Robert S., Friberg, Eric G., and Cohen, Richard E. U.S. aerospace industry at the crossroads. (A/A, November) 44
Atzori, Bruno and Curti, Graziano Lowest critical velocity of rotating shafts. (AIAA J, TN) 885

Bacon, John W. (AIAA J; see Alber, Irwin E.)
Baddeley, Victor (AIAA J; see Likins, Peter W.)
Bailey, Cecil D. Vibration of thermally stressed plates with various boundary conditions. (AIAA J) 14
Bailey, F. R. and Steger, J. L. Relaxation techniques for three-dimensional transonic flow about wings. (AIAA J) 318
Bailey, Paul B. and Touryan, Kenell J. Continuum electrostatic probes in the presence of negative ions: A numerical solution. (AIAA J, SYN) 1225
Bainum, P. M. and Fedor, J. V. Nutational stability of a dual-spin satellite under the influence of applied reaction torques. (JSR) 295
——(JSR; see Sen, S.)
Baker, E. Prediction of long-term heat-pipe performance from accelerated life tests. (AIAA J, TN) 1345
Baker, James L. Satellites for maritime applications. (JSR, SYN) 547
Balakrishnan, M. (AIAA J, TN; see Subramanian, N. R.)
Balderes, Theodore and Armenakas, Anthony E. Free vibrations of ring-stiffened toroidal shells. (AIAA J) 1637
Baldwin, Barrett S. (AIAA J, SYN; see Steger, Joseph L.)
——**Chigier, N. A., and Sheaffer, Y. S.** Decay of far-flowfield in trailing vortices. (AIAA J, SYN) 1601
Balhoff, John F. and Pike, Ralph W. Modeling sublimation of a charring ablator. (JSE, EN) 822
Ball, R. E., Power, H. L., and Fuhs, A. E. Fuel tank wall response to hydraulic ram during the shock phase. (JA, EN) 571
Bandy, A. R. (AIAA J, SYN; see Hillard, Mervin E., Jr.)
Banerjee, S. K. (AIAA J, TN; see Crosbie, A. L.)
Banks, B. A. (JSR; see Rawlin, V. K.)
Bannink, W. J. and Nebbeling, C. Investigation of the expansion side of a delta wing at supersonic speed. (AIAA J) 1151
Bansal, S. K. and Amba Rao, C. L. Photoelastic model analysis of sandwich beams. (AIAA J, ERR) 1216
Barbera, Frank J. and Likins, Peter Liapunov stability analysis of spinning flexible spacecraft. (AIAA J) 457
——(AIAA J; see Likins, Peter W.)
Barebo, R. L. (JSR; see Bauer, R. C.)
Bar-Itzhack, Itzhack Y. Phase lead S-plane compensation. (AIAA J) 1521
Barker, Richard M. and Hatt, Fritz Analysis of bonded joints in vehicular structures. (AIAA J) 1650
Barletta, Joseph M. (JSR; see Miller, B. P.)
Barnes, Benny B. (JA; see Rolston, David R.)
Barnes, R. E. (JSR, SYN; see Howell, L. J.)
Barnwell, R. W. Transonic flow about lifting configurations. (AIAA J, TN) 764
Baronti, Paolo (AIAA J; see Ferri, Antonio)
Barrett, J. J. (AIAA J, SYN; see Smith, William Hayden)
Bartholomew, B., Block, B., and Dratler, J., Jr. Linear and rotational quartz fiber accelerometers for geophysical and inertial use. (AIAA J, SYN) 1227
Bartlett, Eugene P. (JSR; see Putz, Kurt E.)
Barton, L. O. (AIAA J, TN; see Lou, Y. S.)
Baruch, M. (AIAA J; see Shalev, A.)
Battista, R. A. (JSR; see Turk, S. L.)
Bauer, R. C., Matkins, E. H., Barebo, R. L., and Armstrong, W. C. A theoretical and experimental study of a jet stretcher system. (JSR) 395
Bayless, John R. (JSR; see Herron, Bill G.)
Beck, Fred B. (AIAA J; see Dunn, Michael G.)
Beck, George A. (JSR; see Miller, B. P.)
Beichel, Rudi (A/A, June; see Salkeld, Robert)
Belding, John A. and Coley, William B. Integral rocket/ramjet for tactical missiles. (A/A, December) 20
Bell, W. A. (AIAA J; see Zinn, B. T.)
Bellini, Paul X. Forced motion of lumped mass systems including the effect of axial force. (JSR, EN) 610
Belytschko, Ted Reply by author to K. E. Buck. (AIAA J, TC) 1358
Bement, L. J. (JSR; see Marchese, V. P.)
Bender, David F. and Bourke, Roger D. Multiasteroid comet missions using solar electric propulsion. (JSR, SYN) 481
Benedetto, K. R. (AIAA J; see Schreiber, P. W.)
Bennett, James A. Ultraharmonic motion of a viscously damped nonlinear beam. (AIAA J) 710
Benzakein, M. J., Kazin, S. B., and Montegani, F. NASA/GE quiet engine "A." (JA) 67
Berger, R. L. (JA; see Anderson, D. C.)
Bergeron, R. F., Jr. (AIAA J; see Kiel, R. E.)
Bergman, Dave Unique characteristics of exhaust-plume interference. (JA, EN) 508
Berman, Alex and Giansante, Nicholas Determination of free-body responses from constrained tests. (AIAA J) 1622
Berman, K., Albanese, T., Blessing, A., and Roth, N. Additives for heat-transfer reduction in the propellant combinations N_2O_4-MMH and N_2O_4-A-50. (JSR) 493
——**Ferger, T., Roth, N., and Blessing, A.** Scaling of performance and thermal environment in fuel-vortex cooled rocket engines. (JSR, EN) 477

Bernussou, Jacques Satellites attitude control by reaction jet frequency modulation. (JSR) 52
Bert, Charles W. (JSR, EN; see Guess, Tommy R.)
——(JA, EN; see Davenport, Otha B.)
——(JA, EN; see Fisher, Cary A.)
Bertin, John J., Graumann, Bruce W., and Goodrich, Winston D. Aerothermodynamic aspects of shock-interference patterns for shuttle configurations during entry. (JSR, SYN) 545
——**Lamb, J. Parker, Zickler, Jeffrey L., and Goodrich, Winston D.** Heat-transfer measurements for cylindrical configurations in hypersonic streams. (JSR, EN) 217
Bertke, S. D. (AIAA J, TN; see Werle, M. J.)
Bevilaqua, Paul M. Reply to comment by Philip A. Graham. (JA, TC) 703
Beynon, John C. (JSR, EN; see Zafran, Sidney)
Bharathan, D. (JSR; see Fisher, S. S.)
Bhateley, I. C. (JA, EN; see Bradley, R. G.)
Bhatia, Kumar G. and Rudisill, Carl S. Comment on "Rates of change of flutter Mach number and flutter frequency." (AIAA J, TC) 1791
Biesterveld, John R. (JA; see Pepper, William B.)
Bilanin, Alan J. and Covert, Eugene E. Estimation of possible excitation frequencies for shallow rectangular cavities. (AIAA J) 347
Billig, F. S. (AIAA J; see Waltrup, P. J.)
——(JSR, EN; see Waltrup, P. J.)
Bilyk, M. A. (JSR; see Rochelle, William C.)
Bishop, William M. and Minkowycz, W. J. Decomposition rate of a phenolic resin. (AIAA J) 438
Bisplinghoff, Raymond L. Our R&D challenge for national energy policy. (A/A, August) 18
Bjorklund, Fritz R. (JH; see Johnson, Robert S.)
Black, Richard E. and Murphy, David G. Advanced technology applications to present and future transport aircraft. (JA) 259
Blackshear, W. Thomas, Tolson, Robert H., and Day, Gail M. Mars lander position estimation in the presence of ephemeris biases. (JSR, EN) 284
Blaser, Dwight A. and Velkoff, Henry R. A preliminary analytical and experimental investigation of helicopter rotor boundary layers. (AIAA J) 1660
Blessing, A. (JSR; see Berman, K.)
——(JSR, EN; see Berman, K.)
Blick, Edward F. (AIAA J, TN; see Doty, Robert T.)
Block, B. (AIAA J, SYN; see Bartholomew, B.)
Blottner, Frederick G. Correlation of the mass flow rate in the laminar boundary layer on a sphere-cone. (AIAA J, TN) 1044
Blum, Richard J. (AIAA J; see Dunn, Michael G.)
Blumenthal, V. L., Streckenbach, J. M., and Tate, R. B. Aircraft environmental problems. (JA) 529
Boain, R. J. (JSR; see Lee, B. G.)
Bobick, J. C. and Bryson, A. E., Jr. Updating inertial navigation systems with VOR/DME information. (AIAA J) 1377
Bolton, Frank C. Refurbishable spacecraft: Modules and components for the shuttle era. (A/A, April) 44
Bongiovanni, P. L. (AIAA J; see Hutchinson, C. E.)
Bootle, William J. Mass properties of sphere-cone entry vehicles. (JSR, EN) 815
Boraas, Stanton Transonic nozzle flow with nonuniform gas properties. (AIAA J) 210
Borger, John G. Influences of international operations on aircraft-transport design. (A/A, July) 24
Bose, Tarit K. Flow properties fluctuations in a convergent-divergent nozzle. (JSR, EN) 530
——Thermodynamic expansion processes for argon plasma in a convergent-divergent nozzle. (JSR, EN) 613
Bossel, Hartmut H. Swirling flows in streamtubes of variable cross section. (AIAA J) 1161
Boucher, Roland J. (AIAA J, TN; see Johnson, Donald E.)
Boulter, Michael J. (A/A, December; see Meyer, George E.)
Bourke, Roger D. (JSR, SYN; see Bender, David F.)
Bourquin, K. R. (JA; see Denery, D. G.)
Boyer, Keith Laser-initiated fusion—Key experiments looming. (A/A, January) 28
——Power from laser-initiated nuclear fusion. (A/A, August) 44
Bracco, Frediano V. An experimental-analytical method to study steady spray combustion. (JSR, SYN) 353
Bracewell, Ronald N. The opening message from an extraterrestrial probe. (A/A, May) 58
Bradley, R. G., Smith, C. W., and Bhateley, I. C. Vortex-lift prediction for complex wing planforms. (JA, EN) 379
Bradner, Hugh (AIAA J, TN; see Reichle, Michael)
Bradshaw, Peter Comment on "Wall layer of plane turbulent wall jets without pressure gradients." (JA, TC) 698
——**and Patel, V. C.** Comment on "Mean velocity profile of a thick turbulent boundary layer along a circular cylinder." (AIAA J, TC) 893
Bramlette, T. Taz, Smith, Richard R., and Sliski, Neil J. Fin induced laminar interactions on sharp and spherically blunted cones. (JSR) 696
Bratanow, Theodore, Ecer, Akin, and Kobiske, Michael Finite-element analysis of unsteady incompressible flow around an oscillating obstacle of arbitrary shape. (AIAA J) 1471
Breaks, J. C. Dynamic modeling of high bypass ratio turbofan engines. (JA) 350
Brederlow, G., Witte, K. J., and Zinko, H. Investigation of the discharge structure in a noble gas alkali MHD generator plasma: Part I. (AIAA J) 1065
——**and Witte, K. J.** Investigation of the discharge structure in a rare gas alkali MHD generator plasma: Part II. (AIAA J) 1072
Breedlove, William J., Jr. (AIAA J; see Compton, Harold R.)
Brennen, C. and Acosta, A. J. Theoretical, quasi-static analysis of cavitation compliance in turbopumps. (JSR) 175
Breslin, John P. Prospects for 1973 (JH, E) 1
Briggs, M. M. (JSR; see Clark, W. H.)
Brines, Gerald L. Propulsion system design for the ATT. (JA) 487
Brix, C. W., Jr. (AIAA J; see Platzer, M. F.)
Brogan, F. A. (AIAA J, TN; see Almroth, B. O.)
Bronowicki, A. J. (AIAA J, TN; see Felton, L. P.)
Brooks, David R., Drewry, Joseph W., and Hampshire, William F., II Opportunities for multiple asteroid flybys in the 1970's and 1980's. (JSR) 588
Brooks, E. N., Jr. and Zeitfuss, W., Jr. An analysis of desired maneuvering characteristics of large Arctic SEV'S. (JH) 112
Brooks, George W. Developing structures technology for the day after tomorrow. (A/A, July) 56
Brown, Clinton E. Aerodynamics of wake vortices. (AIAA J) 531
Brown, Kenneth R. (AIAA J; see Cohen, Audrey O.)
Brewer, R. A., Saydah, A. R., Nestler, D. E., and Florence, D. E. Thermal performance evaluation of RSI panel gaps for space shuttle orbiter. (JSR) 23
Brusch, Richard G. and Schappelle, Robert H. Solution of highly constrained optimal control problems using nonlinear programing. (AIAA J, SYN) 135
Bryant, James T. and Wood, Stanley E. Measurement of hydrazine gas generator performance by gas chromatography. (AIAA J, TN) 561
Bryson, Arthur E., Jr. (JA; see Hall, W. E., Jr.)
——(AIAA J; see Wood, Lincoln J.)
——(AIAA J; see Bobick, J. C.)
Buck, Karl E. Comment on "Finite elements for axisymmetric solids under arbitrary loadings with nodes on origin." (AIAA J, TC) 1357
Buglia, James J. Planetary flybys resulting in heliocentric orbits normal to the ecliptic with fixed perihelia. (JSR, EN) 601
Bulmer, Bruce M. Flight test correlation technique for turbulent base heat transfer with low ablation. (JSR, EN) 222
——Detection of flight vehicle transition from base measurements. (JSR, EN) 280
——Hypersonic flight results showing Reynolds-number influence on turbulent base pressure. (AIAA J, TN) 1785
Buonadonna, Victor R., Knight, Charles J., and Hertzberg, A. Laser-heated hypersonic wind tunnel. (AIAA J, SYN) 1457
Burbridge, Henry Keith Shuttle payloads: Saving dollars by offsetting risks. (A/A, April) 52
Burick, R. J. Optimum design of space storable gas/liquid coaxial injectors. (JSR) 663
Burkhard, Alan and Young, Warren Buckling of a simply-supported beam between two unattached elastic foundations. (AIAA J, TN) 406
Burkhart, James A. Performance of a modified downstream-cathode MPD thruster. (JSR, EN) 86
Burrows, Marshall C. and Kurkov, Anatole P. An analytical and experimental study of supersonic combustion of hydrogen in vitiated air stream. (AIAA J, SYN) 1217
Bursik, Joseph W. Two-phase Mach numbers in heat pipe analysis. (AIAA J, SYN) 781
Bushnell, David Evaluation of various analytical models for buckling and vibration of stiffened shells. (AIAA J) 1283
——Nonsymmetric buckling of cylinders with axisymmetric thermal discontinuities. (AIAA J) 1292
Bushnell, D. M. and Alston, D. W. Calculation of transitional boundary-layer flows. (AIAA J, TN) 554
Byers, D. C. (JSR; see Rawlin, V. K.)

Cady, E. C. and Kendle, D. W. Vehicle-scale investigation of a fluorine jet-pump liquid hydrogen tank pressurization system. (JSR) 735
Calico, Robert A. (AIAA J; see Meirovitch, Leonard)
Campbell, James F. and Schetz, Joseph A. Flow properties of submerged heated effluents in a waterway. (AIAA J) 223
Campion, Guy, Johnson, David A., and Willems, Pierre Y. Stability of deformable gyrostats based on Sturm's Theorem. (AIAA J) 1093
Campo, A. and Wolko, H. S. Optimum rectangular radiative fins having temperature-variant properties. (JSR, EN) 811
Caravani, Paolo and Thomson, William T. Frequency response of a dynamic system with statistical damping. (AIAA J) 170
Card, Michael F. (JSR; see Heard, Walter L., Jr.)
Cardou, Alain Piecewise uniform optimum design for axial vibration requirement. (AIAA J, TN) 1760
Carleone, Joseph (AIAA J, TN; see Chou, Pei Chi)
Carlson, Joseph M. and Harrison, Judson O., III NASTRAN: A preliminary discussion of user impacts. (JA, SYN) 65
Carlson, Neal A. Fast triangular formulation of the square root filter. (AIAA J) 1259
Carpenter, R. F. (AIAA J, TN; see Lazdinis, S. S.)
Casarella, Mario J. (JH, SA; see Choo, Young-il)
Cass, Stanley D., Scoggins, James R., and Chevalier, Howard L. Low-altitude atmospheric turbulence around an airport. (JA) 157

Cassanto, J. M. A base pressure experiment for determining the atmospheric pressure profile of planets. (JSR) 253
——Stabilization concepts for a spherical planetary entry probe configuration. (JSR, SYN) 753
Cavanagh, J. R. (JA, EN; see Cross, K. R.)
——**Cross, K. R., Newman, R. L., and Spicer, W. C.** Graded thermal barrier—A new approach for turbine for turbine cooling. (JA, ERR) 192
Caveny, L. H. (JSR; see Turk, S. L.)
——(AIAA J; see Peretz, A.)
——(JSR, EN; see Saraniero, M. A.)
Cavin, R. K., III (AIAA J; see Hymas, C. E.)
Caywood, William C. (AIAA J; see Dailey, George)
Cebeci, Tuncer Variation of the Van Driest damping parameter with mass transfer. (AIAA J, TN) 237
——Kinematic eddy viscosity at low Reynolds numbers. (AIAA J, TN) 102
Cenker, Robert J. (JSR; see Kaplan, Marshall H.)
Chackerian, Charles, Jr. Vibrational relaxation of carbon monoxide studied by two-wavelength infrared emission. (AIAA J) 1706
Chadwick, William R. Transverse deflection of guided projectile tail fins during deployment. (JSR, EN) 606
Chambers, Alan B. (JSR, EN; see Shitzer, Avraham)
Chan, T. K. (AIAA J; see Shen, S. F.)
Chandra, Kailash (AIAA J, TN; see Rathy, R. K.)
Chang, C. I. and Conway, H. D. Stresses in a fiber-reinforced elastic sheet containing a circular hole. (AIAA J) 806
Chang, P. K. and Oh, Y. H. Reply by authors to R. H. Cramer. (JH, TC) 96
Chang, Pin Yu and Pilkey, Walter D. Static and dynamic analysis of mooring lines. (JH) 29
Chapter, John J. Spacecraft thermal environments. (JSR, EN) 93
Chase, David M. Reply by author to P. Bradshaw and V. C. Patel. (AIAA J, TC) 894
Chattopadhyay, Arup and Dhatt, Gurbachan Finite deflection of a deep arch with boundary imperfections. (AIAA J, TN) 235
Chaump, L. (AIAA J; see Martellucci, A.)
Cheng, Dah Yu, Wang, Peter, and Chisel, Dean M. Experimental study on optimization parameters of a supersonic jet ejector thrust augmentor. (JA, EN) 569
Cheng, H. K. and Hafez, M. M. Equivalence rule and transonic flow theory involving lift. (AIAA J, TN) 1210
Cherchas, D. B. and Hughes, P. C. Attitude stability of a dual-spin satellite with a large flexible solar array. (JSR) 126
Cherry, William R. Harnessing solar energy: The potential. (A/A, August) 30
Cheung, Y. K. (AIAA J, SYN; see Khatua, T. P.)
Chevalier, Howard Flight test studies of the formation and dissipation of trailing vortices. (JA) 14
——(JA; see Cass, Stanley D.)
Chidley, John D. and Seader, J. D. Effect of additives on ablation of phenolic-silica composites. (JSR) 7
Chigier, N. A. (AIAA J, SYN; see Baldwin, B. S.)
——(JA; see Corsiglia, V. R.)
Childs, Morris E. (JA, EN; see Sun, Chen-Chih)
——(AIAA J, TN; see Rose, William C.)
Chipman, Richard R., Rauch, Frank J., and Hess, Robert W. Flutter of pairs of aerodynamically interfering delta wings. (JA) 728
Chisel, Dean M. (JA, EN; see Cheng, Dah Yu)
Chobotov, V. A. Optimum strategy for the correction of orbit-injection errors of arbitrary orientation. (AIAA J, TN) 375
Choo, Young-il and Casarella, Mario J. A survey of analytical methods for dynamic simulation of cable-body systems. (JH, SA) 137
Chopra, M. G. Diffraction and reflection of shocks from corners. (AIAA J, TN) 1452
Chou, Pei Chi and Carleone, Joseph Transverse shear in laminated plate theories. (AIAA J, TN) 1333
Chou, Y. S. Approximate method of solution for three-dimensional boundary layers. (AIAA J, TN) 1025
Christiano, Paul (AIAA J, TN; see Murthy, Kalayya Narayana)
Christiansen, R. G. (AIAA J; see Cruise, D. R.)
Christoph, G. H. (AIAA J; see White, F. M.)
——(AIAA J, TN; see Lessmann, Richard C.)
——**Lessmann, Richard C., and White, Frank M.** Calculation of turbulent heat transfer and skin friction. (AIAA J, TN) 1046
——(AIAA J, ERR; see Lessmann, Richard C.)
Chu, Chong-Wei Supersonic flow about slab delta wings and wing-body configurations. (JSR, EN) 741
Chu, Ki-Shun A certain type of ill-conditioned stiffness matrix. (AIAA J, TN) 106
Chung, Benjamin T. F. and Yeh, L. T. Heat conduction in slabs with uniform heat sources and radiative boundary conditions. (JSR, SYN) 483
——**and Yeh, L. T.** Integral method for nonlinear transient heat transfer in a semi-infinite solid. (JSR, EN) 88
——**and Yeh, L. T.** Integral method for nonlinear transient heat transfer in a semi-infinite solid. (JSR, ERR) 688
Chung, Chin-Jer (AIAA J, TN; see Smith, Dallas G.)
Chung, Ho (AIAA J, TN; see Greif, Robert)
Chung, Paul M. Performance of turbulent chemical laser. (AIAA J, TN) 1040
Chung, T. J. and Eidson, R. L. Viscoelastoplastic response of axisymmetric shells under impulsive loadings. (AIAA J) 478
Churchyard, James Nohl A universal three-angle basis for rotational kinematic analysis, simulation, and control. (JSR, ERR) 480
Chute, F. S. (AIAA J, TN; see Hepburn, J. D.)
Claffey, James A. (JH; see Johnson, Robert S.)
Clare, T. A. (JA, EN; see Daniels, P.)
Clark, Edward L., Jr. and Hodapp, Albert E., Jr. Experimental determination of asymmetry-induced trim angles of attack. (JSR) 322
Clark, Frank L. and Creel, Theodore R. Jr. Reference temperature method for predicting turbulent compressible skin-friction coefficient. (AIAA J, TN) 239
Clark, W. H., Peoples, J. R., and Briggs, M. M. Occurrence and inhibition of large yawing moments during high-incidence flight of slender missile configurations. (JSR) 510
Cliff, Eugene M. and Lutze, Frederick H. Reply to comment by Paul R. Motyka and G. Warren Hall (JA, TC) 701
Cliff, William C., Fuller, Charles, E., III, and Sandborn, Virgil A. Simultaneous comparison of turbulent gas fluctuations by laser Doppler and hot wire. (AIAA J, TN) 748
Clough, N. (JA; see Diedrich, J. H.)
Clough, Ray W. (AIAA J; see Fonder, Ghislain A.)
Cogan, D. M. and Harvey, J. K. Probe interference in high-speed rarefied flows. (AIAA J, TN) 1765
Cohen, Audrey O. and Brown, Kenneth R. Real-time optimal guidance for orbital maneuvering. (AIAA J) 1266
Cohen, Richard E. (A/A, November; see Attiyeh, Robert S.)
Cohen, William New horizons in chemical propulsion. (A/A, December) 46
Coleman, G. T. Aerodynamic force measurement on caret and delta wings at high incidence. (JSR, EN) 750
Coleman, Hugh W. (AIAA J, TN; see Lemmon, E. Clark)
——**and Lemmon, E. Clark** Turbulent interference heating on several small fin configurations. (JSR, EN) 820
Coleman, W. D. (JSR; see Schneider, P. J.)
Coley, William B. (A/A, December; see Belding, John A.)
Collins, Donald J. (AIAA J; see Alber, Irwin E.)
Colunga, D. (AIAA J; see Hymas, C. E.)
Colwell, Gene T. (AIAA J, SYN; see Goradia, Suresh H.)
Compton, Harold R., Schiess, James R., and Breedlove, William J., Jr. Effects of resonant tesseral gravity coefficients on Viking-type orbits. (AIAA J) 1743
Connell, G. M. Reply by author to W. O. Schiehlen. (AIAA J, TC) 128
Conway, H. D. (AIAA J; see Chang, C. I.)
Conway, Joseph C. (JH, EN; see Tsushima, Hideya)
Cook, Robert D. Comment on "Discrete element idealization of an incompressible liquid for vibration analysis" and "Discrete element structural theory of fluids." (AIAA J, TC) 766
Cooksey, James M. and Arnold, John W. Transonic flow quality improvements in a blowdown wind tunnel. (JA) 554
Cookson, R. A. (AIAA J, TN; see Isaac, J. J.)
Cooper, J. L. (JA, EN; see Rudisill, C. S.)
Cooper, Ralph S. Motion of solid D_2 under laser irradiation. (AIAA J) 831
Coppolino, Robert N. Exact hydroelastic solution for an ideal fluid in a hemispherical container. (JSR, EN) 612
Corsiglia, V. R., Schwind, R. G., and Chigier, N. A. Rapid scanning, three-dimensional hot-wire anemometer surveys of wing-tip vortices. (JA) 752
Costen, Robert C. Drift of buoyant wing-tip vortices. (JA, ERR) 320
Covert, Eugene E. (AIAA J; see Bilanin, Alan J.)
Craig, Roy R., Jr. Optimization of a supersonic panel subject to a flutter constraint—A finite-element solution. (AIAA J, TN) 404
Craig, Samuel J. and Heffley, Robert K. Factors governing control in a STOL landing approach. (JA) 495
Cramer, Raymond H. Earliest classic result for the turbulent hydraulic wake behind body of revolution. (JH, TC) 95
Crawford, David H. A graphical method for the investigation of shock interference phenomena. (AIAA J, TN) 1590
Creel, Theodore R., Jr. (AIAA J, TN; see Clark, Frank L.)
——Mach number and Reynolds number effect on orbiter/tank interference heating. (JSR, EN) 535
Crews, S. T. (JA, EN; see Hohenemser, Kurt H.)
——**Hohenemser, K. H., and Ormiston, R. A.** An unsteady wake model for a hingeless rotor. (JA, EN) 758
Crimi, Peter and Johnson, Ronald A. Aerodynamic loading on high-speed ground vehicles. (JA, EN) 317
Cromack, Duane (JA; see Poli, Corrado)
——(JH; see Weetman, R. J.)
Cronin, R. H. and Kane, T. R. Gravitational stabilization of a two-body satellite. (JSR) 291
Cronk, A. E. (JA, EN; see Ramirez, A., Jr.)
Crosbie, A. L. (AIAA J; see Armaly, B. F.)
——**and Banerjee, S. K.** Modified separable Kernel method for heat conduction with a nonlinear boundary condition. (AIAA J, TN) 744
——Emittance of an isothermal, isotropically scattering medium. (AIAA J, TN) 1203
——Reflection function for an isotropically scattering finite medium. (AIAA J, TN) 1448
Cross, K. R., Lull, W. R., Newman, R. L., and Cavanagh, J. R.

Potential of graded coatings in vibration damping. (JA, EN) 689
——(JA, ERR; see Cavanagh, J. R.)
——(JA, ERR; see Newman, R. L.)
Crotty, J. D. (JSR; see Wen, L.)
Cruise, D. R. and Christiansen, R. G. Digital tuning as an exploratory tool in the modal analysis of randomly-loaded vibrating structures. (AIAA J) 1539
Cruse, T. A. (AIAA J; see Konish, H. J., Jr.)
Cunnold, Derek M. Observability of high-altitude atmospheric scattering layers. (JSR, SYN) 419
Curry, D. M. and Williams, S. D. Nonlinear least squares—An aid to thermal property determination. (AIAA J) 670
Curti, Graziano (AIAA J, TN; see Atzori, Bruno)
Curtiss, H. C., Jr. Complex coordinates in near hovering rotor dynamics. (JA) 289
Czysz, P., Glaser, F. C., and LaFavor, S. A. Potential payoffs of variable geometry engines in fighter aircraft. (JA) 342

Dai, Yau-tien (JH, EN; see Liu, Chang-yu)
Dailey, George, Caywood, William C. and O'Connor, James S. A general purpose computer program for the dynamic simulation of vehicle-guideway interaction. (AIAA J) 278
Daniel, B. R. (AIAA J; see Zinn, B. T.)
Daniels, P. and Clare, T. A. Angular momentum and the aircraft-store separation problem. (JA, EN) 511
D'Appolito, J. A. (AIAA J; see Hutchinson, C. E.)
Darwin, Charles R. (A/A, May; see Murphy, James T.)
Das, Aniruddha (AIAA J, TN; see Maitra, Manoj)
——Comment on "Thermally induced vibration and flutter of a flexible boom." (JSR, TC) 288
Dasenbrock, Robert (JSR; see Kaufman, Bernard)
d'Attorre, Leo (JSR; see Rochelle, William C.)
Dauerman, Leonard and Salser, G. E. Factor of fuel pyrolysis in injector design. (AIAA J, TN) 99
Dauksys, Richard J. (AIAA J, SYN; see Mills, George)
Davenport, Otha B. and Bert, Charles W. Buckling of orthotropic, curved, sandwich panels in shear and axial compression. (JA, EN) 632
Davenport, Paul B. Rotations about nonorthogonal axes. (AIAA J) 853
Davies, W. D. T. and Martin, S. C. A simplified correlation method for distance measurement using satellites. (JA) 525
Davis, John William and Graham, Robert F. Wind-tunnel wall interference effects for 20° cone-cylinders. (JSR) 671
——**and Graham, Robert F.** High Reynolds number experimental data for forebody axial force. (AIAA J, TN) 379
Davis, Joseph E. and Harris, Gordon L. Nonplanar wings in nonplanar ground effect. (JA) 308
Davis, Michael Richard Application of hot wires to measurements in freely expanding jets. (AIAA, J, TN) 113
Davis, Robert L. and Weber, Robert C. Study of the effects of pressure-induced viscosity changes on the fluid flow characteristics in a circular tube. (AIAA J, SYN) 905
Davy, W. C. (AIAA J, TN; see Pearson, W. E.)
Day, Gail M. (JSR, EN; see Blackshear, W. Thomas)
de Boer, P. C. T. Ion boundary layer on a flat plate. (AIAA J) 1012
——**and Johnson, R. A.** Reply by authors to A. G. Hammitt. (AIAA J, TC) 1598
DeBrock, S. C. (JSR; see Dowdy, M. W.)
Deckert, James C. (JSR; see Potter, James E.)
De Jarnette, Fred R. and Hamilton, H. Harris Inviscid surface streamlines and heat transfer on shuttle-type configurations. (JSR) 314
DeJoode, A. D. (AIAA J, TN; see Hsu, C. T.)
Demetriades, A. and Laderman, A. J. Reynolds stress measurements in a hypersonic boundary layer. (AIAA J, TN) 1594
Denery, D. G., Bourquin, K. R., White, K. C., and Drinkwater, F. J., III Flight evaluation of three-dimensional area navigation for jet transport noise abatement. (JA) 226
Deyst, John J., Jr. and Price, Charles F. Optimal stochastic guidance laws for tactical missiles. (JSR) 301
——**and Sutherland, Arthur A., Jr.** Strapdown inertial system alignment using statistical filters: A simplified formulation. (AIAA J) 452
Dhatt, Gurbachan (AIAA J, TN; see Chattopadhyay, Arup)
Dhoopar, B. L. (AIAA J; see Vendhan, C. P.)
Dickey, Robert R. (AIAA J; see Lundell, John H.)
Diedrich, J. H. (JA; see Lieblein, S.)
——**Clough, N., and Lieblein, S.** Installation effects on performance of multiple model V/STOL lift fans. (JA) 355
Doenecke, Jochen Application of the Monte Carlo method for radiation exchange in spacecraft. (JSR) 652
Dokainish, M. A. and Kumar, K. Vibrations of orthotropic parallelogramic plates with variable thickness. (AIAA J) 1618
Dong, S. B. and Tso, F. K. W. SH wave motions in laminated orthotropic plates. (AIAA J, TN) 746
Dopkin, Joseph A. and Shoup, Terry E. Flexibility coefficients for bending of a disk under sinusoidal edge loading. (AIAA J, TN) 1339
Dosanjh, Darshan S. and Yu, James C. Reply by authors to A. G. Kurn. (AIAA J, TC) 415
Doty, Robert T. and Rasmussen, Maurice L. Approximation for hypersonic flow past an inclined cone. (AIAA J) 1310
——**and Blick, Edward F.** Local potential variational method applied to Hiemenz flow. (AIAA J, TN) 880
Douglas, B. E. (AIAA J; see Lu, Y. P.)
Dowdy, M. W. and DeBrock, S. C. Selection of a surface-tension propellant management system for the Viking 75 orbiter. (JSR) 549
Dowell, E. H. Theoretical vibration and flutter studies of point supported panels. (JSR) 389
——Aerodynamic boundary layer effects on flutter and damping of plates. (JA) 734
——(AIAA J, TN: see Yan, Miin-Jeng)
——**and Ventres, C. S.** Derivation of aerodynamic Kernel Functions. (AIAA J, TN) 1586
Draper, James Stark and Sutton, Emmett A. A nomogram for high-altitude plume structures. (JSR, EN) 682
Dratler, J., Jr. (AIAA J, SYN; see Bartholomew, B.)
Drewry, Joseph W. (JSR; see Brooks, David R.)
Driggers, Gerald W. Short guide to Titan III launch vehicles. (A/A, February) 68
Drinkwater, F. J. III (JA; see Denery, D. G.)
Driskell, T. D. (JA, ERR; see Newman, R. L.)
D'Souza, Norbert, Molder, Sannu, and Moretti, Gino "Numerical method for hypersonic internal flow over blunt leading edges and two blunt bodies." (AIAA J, ERR) 256
Duff, Karl M. The NATO patrol missile hydrofoil. (PHM). (JH) 97
Dugan, J. P. Limitation of boundary residual methods. (AIAA J, TN) 1330
Dugger, G. L., Bryans, R. F., and Huth, A. In memorium. (JA) 513
Dugundji, John (AIAA J, SYN; see Kuo, Ching-chiang)
Dunn, Michael G. (AIAA J; see Kang, Sang-Wook)
——**Blum, Richard J., Swift, Calvin T., Beck, Fred B., and Grantham, William L.** Antenna admittance determination of electron density. (AIAA J) 1018
Duong, Nguyen and Winn, C. Byron Orbit determination by range-only data. (JSR) 132
Dutt, B. (JA; see Inger, G. R.)
Dutton, Richard A. (JSR; see McKinney, Howard F.)
Dvorak, F. A. Calculation of turbulent boundary layers and wall jets over curved surfaces. (AIAA J) 517
Dwivedi, Narendra P. Maneuver strategies for multiplanet missions. (AIAA J, SYN) 1229
Dwoyer, D. L. (AIAA J; see Shang, J. S.)
——(AIAA J; see Werle, M. J.)
——(AIAA J, TN; see Hankey, W. L.)
Dwyer, H. A. Calculation of unsteady and three-dimensional boundary-layer flows. (AIAA J, SYN) 773
Dyer, David F. (JH; see Amos, Robert G.)

Eames, M. C. (JH; see Jeffrey, N. E.)
Eaton, Roger R. and Kaestner, Peter C. Viscous shock layer flow in the windward plane of cones at angle of attack. (AIAA J, TN) 1337
Eaves, R. H., Jr. (JSR, EN; see Pate, S. R.)
Ebrahim, N. A. and Hornung, H. G. Nonequilibrium nozzle expansions of carbon dioxide from a high-enthalpy reservoir. (AIAA J, SYN) 1369
Ecer, Akin (AIAA J; see Bratanow, Theodore)
——Finite element analysis of the postbuckling behavior of structures. (AIAA J) 1532
Edelson, Burton I. Small Earth terminals for satellite communications. (A/A, June) 40
Eder, Hans New solar cell systems for solar probes. (JSR) 196
Edgerton, A. T., Meeks, D., and Williams, D. Microwave emission characteristics of oil slicks. (JH) 35
Edwards, Jack W. MLS: On the beam for '76. (A/A, March) 24
Ehlers, F. Edward Stress distribution and displacements in a lubricated elastic seal. (JA, SYN) 3
Ehrlich, Louis W. (JH; see Schetz, Joseph A.)
Eichenbaum, Frederick D. An improved kernel function formulation for unsteady subsonic flow. (AIAA J, TN) 123
Eickhoff, H. E. Comment on "Laminar thermal boundary layers on continuous surfaces." (AIAA J, TC) 895
Eidson, R. L. (AIAA J, see Chung, T. J.)
Ekstrom, R. E. Dynamic buckling of a rectangular orthotropic plate. (AIAA J) 1655
Eller, T. J. (AIAA J, TN; see Williamson, W. E.)
Ellis, David R. (JA; see Seckel, Edward)
Emory, M. Lawrence (AIAA J, SYN; see Hillard, Mervin E., Jr.)
Engel, Carl D., Farmer, Richard C., and Pike, Ralph W. Ablation and radiation coupled viscous hypersonic shock layers. (AIAA J) 1174
English, C. H. Computer aided design-drafting (CADD)—Engineering/manufacturing tool. (JA) 747
Ericsson, Lars E. and Reding, J. Peter Stall-flutter analysis. (JA) 5
——**Reding, J. Peter, and Guenther, Rolf A.** Elastic launch vehicle response to sinusoidal gusts. (JSR) 244
——(JSR; see Reding, J. Peter)
——**and Guenther, Rolf A.** Dynamic instability caused by forebody blowing. (AIAA J, TN) 231
——**Reding, J. Peter, and Guenther, Rolf A.** Relative magnitudes of stresses caused by static and dynamic launch vehicle loads. (JSR, EN) 276
——**and Price, Donald A., Jr.** A mechanism for ablation-induced spin-up. (AIAA J, TN) 567

Eubank, H. P. (AIAA J, TN; see Jacobsen, R. A.)
Evan-Iwanowski, R. M. (AIAA J; see Agrawal Brij N.)
Evans, J. S., Schexnayder, C. J., Jr., and Huber, Paul W. Boundary layer electron profiles for high-altitude entry of a blunt slender body. (AIAA J, SYN) 1371
Evans, Norman A. Discharge characteristics in cesium-seeded argon. (AIAA J) 683
Evans, R. M. and Kruger, C. H. Effects of channel size on the ionization instability in MHD generators. (AIAA J) 1006
Evbouma, S. Nosakhare (AIAA J, TN; see Smith, Russell A.)
Ezekiel, Shaoul (AIAA J; see Sullivan, John P.)

Falanga, R. A. (JSR, EN; see Sutton, Kenneth)
Fanning, A. E. and Mueller, T. J. Numerical and experimental investigation of the oscillating wake of a blunt-based body. (AIAA J) 1486
Farmer, Richard C. (AIAA J; see Engel, Carl D.)
Faust, Nickolas L. (JSR; see Taylor, James J.)
Farrow, Leonilda A. and Fitch, Arthur H. Ultraviolet radiation from the bow shock of a sphere during atmospheric re-entry. (AIAA J) 272
Favin, Stanley (JH; see Schetz, Joseph A.)
——(AIAA J, TN; see Schetz, Joseph A.)
Fay, James A. (JA; see Overcamp, Thomas J.)
Fearn, D. G. and Philip, C. M. An investigation of physical processes in a hollow cathode discharge. (AIAA J, SYN) 131
Featherby, Michael (JA; see Hersh, Michael S.)
Fedor, J. V. (JSR; see Bainum, P. M.)
Feller, William V. Effects of upstream wall temperatures on hypersonic tunnel wall boundary-layer profile measurements. (AIAA J, TN) 556
Felton, L. P., Nelson, R. B., and Bronowicki, A. J. Thin-walled elements in truss synthesis. (AIAA J, TN) 1780
——(AIAA J, ERR; see Nelson, Richard B.)
Ferger, T. (JSR, EN; see Berman, K.)
Ferri, Antonio and Baronti, Paolo A method for transonic wind-tunnel corrections. (AIAA J) 63
Filotas, L. T. Finite chord effects on vortex induced wing loads. (AIAA J, TN) 888
Fink, Martin R. (JA; see Paterson, Robert W.)
——Thrust reverser noise estimation. (JA, EN) 507
Finson, Michael L. Hypersonic wake aerodynamics at high Reynolds numbers. (AIAA J) 1137
Fischer, Michael C. Influence of moderate wall cooling on cone transition at $M_e = 13.7$ in helium. (JSR, EN) 282
Fisher, Cary A. and Bert, Charles W. Design of crashworthy aircraft cabins based on dynamic buckling. (JA, EN) 693
Fisher, S. S. and Bharathan, D. Glow-discharge flow visualization in low-density free jets. (JSR) 658
Fitch, Arthur H. (AIAA J; see Farrow, Leonilda A.)
Fitzgerald, Dennis J. (JSR; see Pawlik, Eugene V.)
Flax, Alexander H. Comment on "Simplification of the wing-body problem." (JA, TC) 640
——Comment on "Lift of wing-body combination." (AIAA J, TC) 896
——Comment on "Lateral vibration and stability relationship of elastically restrained circular plates." (AIAA J, TC) 1599
Fleeter, Sanford Fluctuating lift and moment coefficients for cascaded airfoils in a nonuniform compressible flow. (JA) 93
Fletcher, James C. ERTS-1: Toward global monitoring. (A/A, September) 32
Florence, D. E. (JSR; see Brewer, R. A.)
Flower, William (AIAA J, TN; see Hanson, Ronald K.)
Fogaroli, Richard P. (AIAA J, SYN; see Laganelli, Anthony L.)
Fogelson, S. A. (AIAA J; see Mandl, A.)
Foley, William M. (JA; see Paterson, Robert W.)
Fonder, Ghislain and Clough, Ray W. Explicit addition of rigid-body motions in curved finite elements. (AIAA J) 305
Forney, A. K. Engine exhaust emission levels. (JA) 716
Forrestal, M. J. (AIAA J, TN; see Walling, H. C.)
——**Sagartz, M. J., and Walling, H. C.** Comment on "Dynamic response of a cylinder to a side pressure pulse." (AIAA J, TC) 1355
Förster, Karl M. Comment on Moretti's method. (AIAA J, TC) 576
Fortier, R. C. Transverse vibrations related to stability of curved anisotropic plates. (AIAA J, TN) 1782
Fox, Jay and Rungaldier, Harald Turbulent scattering spectra of electron density fluctuations in Mach 16 projectile wakes. (AIAA J) 1059
Fox, R. L., Miura, H., and Rao, S. S. Automated design optimization of supersonic airplane wing structures under dynamic constraints. (JA, SYN) 321
Fradkin, David B. Comment on "Performance of quasi-steady MPD thrusters at high powers." (AIAA J, TC) 413
Fredericks, J. T. and Shorr, M. Material evaluation under direct rocket exhaust impingement. (JSR, EN) 533
Fretz, R. T. (JH, EN; see Gilreath, H. E.)
Friberg, Eric G. (A/A, November; see Attiyeh, Robert S.)
Frick, Kenneth E. (JSR, EN; see Nunn, Robert H.)
Frick, Roy K. Evaluation of the selection and training of fighter pilots. (JA) 120
Fried, Isaac Shape functions and the accuracy of arch finite elements. (AIAA J) 287
Friedman, Herbert High energy astronomy. (Dryden Lecture—A/A, April) 30
Friedmann, Peretz Aeroelastic instabilities of hingeless helicopter blades. (JA) 623
Frosch, Robert A. Reflections on designing advanced marine vehicles. (A/A, January) 50
Fry, Peter (JA; see Stevens, Stanley J.)
Fuhs, Allen E. Density inhomogeneity in a laser cavity due to energy release. (AIAA J, TN) 374
——(JA, EN; see Ball, R. E.)
Fujimori, Yoshinori and Lin, Y. K. Analysis of airplane response to nonstationary turbulence including wing bending flexibility. (AIAA J) 334
——**and Lin, Y. K.** Analysis of airplane response to nonstationary turbulence including wing bending flexibility II. (AIAA J, TN) 1343
Fuller, Arthur L. (JH; see Johnson, Robert S.)
Fuller, Charles E., III (AIAA J, TN; see Cliff, William C.)
Fuller, W. H., Jr. (AIAA J, TN; see McCormick, M.P.)

Gallington, Roger W. Ram wing surface effect boat. (JH) 118
Gal-or, B. (AIAA J, TN; see Weihs, D.)
Garg, Subhash Derivatives of eigensolutions for a general matrix. (AIAA J, TN) 1191
Gatland, Kenneth W. When do we cooperate and when do we compete? (A/A, July) 12
Gautier, Bernard G. and Ginoux, Jean J. Improvement to Klineberg's method for the calculation of viscous-inviscid interactions in supersonic flow. (AIAA J, TN) 1323
Gelb, A. and Warren, R. S. Direct statistical analysis of nonlinear systems: CADET. (AIAA J) 689
Genalis, P. (JH, SA; see Leopold, R.)
Genin, Joseph (AIAA J; see Ginsberg, Jerry H.)
Gerhart, Philip M. Heat transfer downstream of attachment of a turbulent supersonic shear layer. (AIAA J, TN) 104
——**and Thomas, L. C.** Prediction of heat transfer for turbulent boundary layer with pressure gradient. (AIAA J, TN) 552
Gersten, K. and Gross, J. F. Increase of boundary-layer heat transfer by mass injection. (AIAA J, TN) 738
Ghose, R. N. Reduction of ILS errors caused by building reflections. (JA) 167
——Reduction of ILS errors caused by building reflections. (JA, ERR) 512
Giansante, Nicholas (AIAA J; see Berman, Alex)
Gilreath, H. E. and Fretz, R. T. Bubble track technique for velocity measurement in stratified liquids. (JH, EN) 93
——**and Walton, C. R.** Frequency response of stationary internal wave probes. (JH, EN) 170
Ginoux, Jean J. (AIAA J, TN; see Gautier, Bernard G.)
Ginsberg, Jerry H., Ting, Edward C., and Genin, Joseph Interaction of an air-cushioned vehicle with an elastic guideway. (AIAA J) 980
Glaser, F. C. (JA; see Czysz, P.)
Glaser, Peter E. Solar power via satellite. (A/A, August) 60
Goldberg, Theodore J. Three-dimensional separation for interaction of shock waves with turbulent boundary layers. (AIAA J, TN) 1573
Golden, J. O. (JSR, SYN; see Schelden, B. G.)
Goldman, Robert L. and Obremski, Henry J. Experimental investigation of hypersonic buzz on a delta configuration. (AIAA J, SYN) 1361
Goldstein, H. W. (JSR; see Pikus, I. M.)
Goldstein, Raymond (JSR; see Pawlik, Eugene V.)
Goodman, Theodore R. A criterion for assessing wind-tunnel wall interference at Mach 1. (JA, EN) 695
——Comment on "Added mass of a circular cylinder in contact with a rigid boundary." (JH, TC) 96
Goodmanson, Lloyd T. and Gratzer, Louis B. Recent advances in aerodynamics for transport aircraft. Part I. (A/A, December) 30
Goodrich, Winston D. (JSR, SYN; see Bertin, John J.)
——(JSR, EN; see Bertin, John J.)
Goodson, R. E. (JA; see Seitz, W. R.)
Goodyear, W. H. A method of numerical integration for trajectories with variational equations. (AIAA J) 1732
Goodyer, Michael J. and Kilgore, Robert A. High-Reynolds-number cryogenic wind tunnel. (AIAA J) 613
Goradia, Suresh H. and Colwell, Gene T. Parametric relations for ordinary and confluent turbulent boundary-layer flows. (AIAA J, SYN) 583
Grabow, R. M. and White, C. O. A surface flow approach for predicting crosshatch patterns. (AIAA J) 841
——(AIAA J; see White, C. O.)
Graham, Philip A. Comments on "Low-area ratio, thrust-augmenting ejectors." (JA, TC) 701
Graham, Ralph E. and McDowell, Jerry L. "Simplification of the wing-body interference problem." (JA, ERR) 128
Graham, Robert F. (JSR; see Davis, John William)
——(AIAA J, TN; see Davis, John William)
Grantham, William L. (AIAA J; see Dunn, Michael G.)
Granville, Paul S. Geometrical characteristics of flat-faced bodies of revolution. (JH) 166
Gratzer, Louis B. (A/A, December; see Goodmanson, Lloyd T.)
Graumann, Bruce W. (JSR, SYN; see Bertin, John J.)
Gray, C. R., Malchow, H. L., Merritt, D. C., and Var, R. E. Aerosol monitoring by satellite horizon scanning. (JSR) 71
Gray, J. Don and Rhudy, R. W. Effects of blunting and cooling on separation of laminar supersonic flow. (AIAA J) 1296

Greathouse, William K. Comments on the comment by Philip A. Graham and reply by Paul M. Bevilaqua. (JA, TC) 704
Greco, J. R. Simplified tradeoff studies of large hydrofoil ships. (JH, EN) 43
Green, Michael J. (AIAA J; see Howe, John T.)
——(AIAA J, ERR; see Howe, John T.)
Green, Richard H. (A/A, June; see Wardle, Michael D.)
Greenberg, R. A. (AIAA J; see Parmentier, E. M.)
Greenleaf, William G. (AIAA J; see Andrus, Jan F.)
Greenwald, George F. (JSR, EN; see Sayano, Shoichi)
Greenwood, S. W. Capabilities of buoyant-lift vehicles in planetary atmospheres. (JSR, EN) 352
——Comment on "Derivation of the thrust equation from conservation of energy." (JA, TC) 448
Gregory, Derek P. Hydrogen transportable storable energy medium. (A/A, August) 38
Greif, Robert and Chung, Ho Constrained shell vibrations. (AIAA J, TN) 1049
Grey, Jerry (A/A, February; see Layton, J. Preston)
——Prospecting for energy. (A/A, August) 24
——Energy: Lifeblood of our cities. (A/A, December) 52
Griggs, M. (AIAA J, SYN; see Acton, L. L.)
Grissom, J. Lloyd Measurement of emissions from jet engines in altitude test cells. (JA) 475
Grittner, Steven F. and Munson, Bruce R. Aerodynamic characteristics of vehicles traveling in perforated tubes. (AIAA J, TN) 251
Gross, J. F. (AIAA J, TN; see Gersten, K.)
Gruneich, Fredric A. (AIAA J, TN; see Romero, Jacob B.)
——(JSR, EN; see Wayte, Michael J.)
Guenther, Rolf A. (JSR; see Ericsson, Lars E.)
——(JSR; see Reding, J. Peter)
——(JSR, EN; see Ericsson, Lars E.)
——(AIAA J, TN; see Ericsson, Lars E.)
Guess, Tommy R. and Bert, Charles W. Material design concepts for filament-wound, graphite-graphite heatshields: further analysis. (JSR, EN) 159
Gulati, S. T. and Ozaltin, O. Bending of nonuniform plates with asymmetric thickness variation—inclusion of shear deformation. (AIAA J) 174
Gupta, Roop N. Nonlinear problem of a shock-tube interaction-region boundary layer. (AIAA J, TN) 548
Gupta, V. D. (JSR, EN; see Rao, B. S.)
Gustafson, Donald E. and Kriegsman, Bernard A. A guidance and navigation system for automatic stationkeeping in Earth orbit. (JSR) 369
Gutierrez, Orlando A. (JA; see Stone, James R.)
Gutshall, R. L. (JSR; see Mackison, D. L.)
Gwin, L. B. and Taylor, R. F. A general method for flutter optimization. (AIAA J) 1613

Habib, I. S. and Na, T. Y. Unsteady flow of power-law fluids. (AIAA J, TN) 1588
Hack, Harvey P. (JH; see Miller, Boyce E.)
Hackett, J. E. and Justice, J. L. Aerodynamics of a fixed ground plane for a powered STOL wind-tunnel model. (JA) 137
Hadler, J. B. (JH, SA; see Leopold, R.)
Hafez, M. M. (AIAA J, TN; see Cheng, H. K.)
Haftka, Raphael T. and Robinson, James C. Effect of out-of-planeness of membrane quadrilateral finite elements. (AIAA J, TN) 742
——**and Robinson, James C.** Effect of out-of-planeness of membrane quadrilateral finite elements. (AIAA J, ERR) 1792
Hahn, Mansop and Pfenninger, W. Prevention of transition over a backward step by suction. (JA) 618
Haisler, Walter E. (AIAA J; see Stricklin, James A.)
Halbach, Carl R., Page, Russell J., and McCaughey, Owen J. Spacecraft applications of high-temperature electrically conducting ceramics. (JSR, EN) 415
Hall, B. M., Sholar, M. S., and Allred, A. P. Estimation of control surface dynamic derivatives from flight test data. (AIAA J) 312
Hall, G. D. (AIAA J, SYN; see Acton, L. L.)
Hall, G. Warren (JA, TC; see Motyka, Paul R.)
Hall, J. Gordon, Srinivasan, G., and Rathi, Jaipal S. Laminar boundary layer in noncentered unsteady waves. (AIAA J, TN) 1770
Hall, W. E., Jr. and Bryson, A. E., Jr. Inclusion of rotor dynamics in controller design for helicopters. (JA) 200
Hallquist, John and Snyder, Virgil Synthesis of two discrete vibratory systems using eigenvalue modification. (AIAA J, TN) 247
Hamilton, H. Harris (JSR; see De Jarnette, Fred R.)
Hammersley, R. J. (AIAA J; see Jones, B. G.)
Hammitt, A. G. Comments on "Theory of ion boundary layer." (AIAA J, TC) 1597
Hampshire, William F., II (JSR; see Brooks, David R.)
Hankey, W. L., Jr. (AIAA J; see Shang, J. S.)
——(AIAA J; see Werle, M. J.)
——**Dwoyer, D. L., and Werle, M. J.** Branching solutions for supersonic interacting boundary layers. (AIAA J, TN) 1349
Hanson, Ronald K. and Flower, William Verification of a simple relationship for shock-wave reflection in a relaxing gas. (AIAA J, TN) 1777
Hara, Michio Effects of magnetic and gravitational torques on spinning satellite attitude. (AIAA J) 1737
Harris, Gordon L. (JA; see Davis, Joseph E.)
Harrison, Judson O., III (JA, SYN; see Carlson, Joseph M.)
Hart-Smith, L. J. Comment on "Film reinforced multifastened mechanical joints in fibrous composites." (JA, TC) 573
Hartzman, Mark Stress-strain relations for materials with different tension, compression yield strengths. (AIAA J, TN) 378
Harvey, D. W. Drop size distribution resulting from liquid jet injection across a supersonic stream. (AIAA J) 826
Harvey, J. K. (AIAA J, TN; see Cogan, D. M.)
Hassig, Hermann J. Elimination of degrees of freedom by structural splining. (AIAA J, TN) 405
Hatt, Fritz (AIAA J; see Barker, Richard M.)
Havener, Albert G. (AIAA J, TN; see Radley, Roger J., Jr.)
Haviland, George P. and Tiffany, Charles Understanding the USAF structural integrity program. (A/A, July) 67
Haviland, John Kenneth and Yoo, Young Sik Downwash-velocity potential method for oscillating surfaces. (AIAA J) 607
——Integral equation for small perturbations of irrotational flows. (AIAA J, TN) 1778
Hayduk, Robert J. Hail damage to typical aircraft surfaces. (JA) 52
Hayes, Dallas T. and Rotman, Walter Microwave and electrostatic probe measurements on a blunt re-entry vehicle. (AIAA J) 675
Heard, Walter L., Jr., Anderson, Melvin S., Anderson, James Kent, and Card, Michael F. Design, analysis, and tests of a structural prototype viking aeroshell. (JSR) 56
Heath, R. M. (JSR; see Schneider, P. J.)
Heffley, Robert K. (JA; see Craig, Samuel J.)
Heine, Walter (AIAA J; see Salmon, David M.)
Helms, Vernon T., III Approximation for maximum centerline heating on lifting entry vehicles. (JSR, EN) 599
Henderson, Lee H. (JH; see Sanders, James V.)
Hepburn, J. D., Chute, F. S., and Vermeulen, F. E. Visual display of the spatial distribution of colloidal particle beams. (AIAA J, TN) 370
Herbert, M. V. Comment on "A compressibility correction for internal flow solutions." (JA, TC) 574
Herbst, W. B. and Krogull, B. Design for air combat. (JA) 247
Herendeen, D. L. (AIAA J; see Zelazny, S. W.)
Hermance, Clarke E. Ignition analysis of adiabatic, homogeneous systems including reactant consumption. (AIAA J) 1728
Herring, H. James (AIAA J, SA; see Mellor, George L.)
Herron, Bill G., Bayless, John R., and Worden, John D. High-voltage solar array technology. (JSR) 457
Hersh, Michael S. and Featherby, Michael Joining of boron/aluminum composites. (JA) 99
Hertzberg, A. (AIAA J, SYN; see Buonadonna, Victor R.)
Hesketh, W. C. (AIAA J, SYN; see Acton, L. L.)
Hess, J. R., Jr. (JA; see Anderson, D. C.)
Hess, Robert W. (JA; see Chipman, Richard R.)
Hester, S. D. (AIAA J; see Mandl, A.)
Hickman, Roy Scott and Kyser, James B. Refinements in high-Reynolds number shock-tunnel technology. (AIAA J) 961
Hill, Jacques, A. F. (JSR, EN; see Jarvinen, Philip O.)
——**and Jarvinen, Philip O.** Pumping capacity of venturi exhausts. (JA, EN) 444
Hillard, Mervin E., Jr., Emory, M. Lawrence, and Bandy, A. R. Remote sensing of CF_4 number density in a hypersonic flow using Raman scattering. (AIAA J, SYN) 775
Hillery, R. D. (JA; see Lyon, T. A.)
Hirano, Toshisuke, Shiratori, Hirozo, and Tsuji, Hiroshi Ion current at the forward stagnation region of an electrically conducting body. (AIAA J, TN) 887
——(AIAA J, TN; see Tsuji, Hiroshi)
Hobbs, Robert W. (A/A, October; see Maran, Stephen P.)
Hoblit, Frederic M. (JA; see Stauffer, Warren A.)
Hodapp, Albert E., Jr. (JSR; see Clark, Edward L., Jr.)
Hoeppner, David W. (JA; see Krupp, William E.)
Hofland, R. (AIAA J; see Mirels, H.)
Hohenemser, Kurt H. and Crews, S. T. Model tests on unsteady rotor wake effects. (JA, EN) 58
——(JA, EN; see Crews, S. T.)
Holmes, Leroy A. (AIAA J, SYN; see Krane, Robert J.)
Hopkins, Edward J. (AIAA J, TN; see Keener, Earl R.)
Hornung, H. G. (AIAA J, SYN; see Ebrahim, N. A.)
Houbolt, John C. Atmospheric turbulence. (AIAA J, Dryden Research Lecture) 421
Hough, Gary R. Remarks on vortex-lattice methods. (JA, EN) 314
Houwink, Roel and Richards, Bryan E. Experimental study of a high lift re-entry vehicle configuration. (AIAA J, TN) 749
Howe, John T. and Green, Michael J. Analysis of sublimation-cooled coated mirrors in convective and radiative environments. (AIAA J) 80
——**Green, Michael J. and Weston, Kenneth C.** Thermal shielding by subliming volume reflectors in convective and intense radiative environments. (AIAA J) 989
——**Green, Michael J. and Weston, Kenneth C.** Thermal shielding by subliming volume reflectors in convective and intense radiative environments. (AIAA J, ERR) 1600
——(AIAA J, TN; see Lincoln, Kenneth A.)
Howell, John R. Monte Carlo treatment of data uncertainties in thermal analysis. (JSR) 411
Howell, L. J., Kuchta, B. J., and Barnes, R. E. Nonstationary ascent

wind analysis. (JSR, SYN) 755
Hsieh, Chia-Lung and Seader, J. D. Surface ablation of silica-reinforced composites. (AIAA J) 1181
——**and Seader, J. D.** Similarity analysis for the surface ablation of silica-reinforced composites. (JSR) 797
Hsu, C. T. and DeJoode, A. D. Inviscid swirling flows through a choked nozzle. (AIAA J, TN) 1564
Hua, Hsichun M. A finite-element method for calculating aerodynamic coefficients of a subsonic airplane. (JA) 422
Huang, Chi-lung Postbuckling of an annulus. (AIAA J) 1608
——(AIAA J, TN; see Woo, H. K.)
Huang, N. C. Inelastic buckling of eccentrically loaded columns. (AIAA J) 974
Huber, Paul W. (AIAA J, SYN; see Evans, J. S.)
Hudson, F. J. (A/A, May; see Poupard, R. E.)
Huggins, Raymond W. Electrostatic probe data from Bell Sphere B09. (AIAA J, SYN) 257
Hughes, P. C. (JSR; see Cherchas, D. B.)
Hui, W. H. Methods for calculating nonlinear flows with attached shock waves over conical wings. (AIAA J, TN) 1443
Hunt, B. L. An attempted improvement of the method of integral relations for a blunt body in a supersonic flow. (AIAA J, TN) 1575
Hunt, D. A. Velocity of a stress wave superimposed on the initial plastic stress state of a rod. (AIAA J, TN) 1342
Hunt, Jack R., Levitt, Ben B., Morse, Francis, Stehling, Kurt R., and Vaeth, J. Gordon The many uses of the dirigible. (A/A, October) 58
Hunter, A. M., II (AIAA J; see Schreiber, P. W.)
Huseyin, K. (AIAA J, TN; see Plaut, R. H.)
Hussein, M. Fathy and Tabakoff, W. Dynamic behavior of solid particles suspended by polluted flow in a turbine stage. (JA) 434
Hutchinson, C. E., D'Appolito, J. A., and Bongiovanni, P. L. Minimax design of Kalman-like filters in the presence of large-parameter uncertainties. (AIAA J) 694
Huzar, Stephen (JSR; see Kana, Daniel D.)
Hyman, J., Jr. Development of a 5-cm flight-qualified mercury ion thruster. (JSR) 503
Hymas, C. E., Cavin, R. K., III, and Colunga, D. Neighboring extremals for optimal control problems. (AIAA J) 1101

Ichikawa, Teruo (AIAA J; see Isogai, Koji)
Ii, Jack Morito and Rowe, William S. Unsteady aerodynamics of nonplanar wings and wing-tail configurations of elastic flight vehicles in supersonic flight. (JA) 19
Imber, Murray A temperature extrapolation method for hollow cylinders. (AIAA J, TN) 117
Incrocci, Thomas P. (JA; see Scoggins, James R.)
Incropera, Frank P. (AIAA J; see Scott, Robert K.)
——(AIAA J, TN; see Lee, J. B.)
Ingelfinger, A. L. Space life-support and environmental control: Systems for the '70s. (A/A, May) 61
Inger, G. R. and Dutt, B. Surface curvature and lateral pressure gradient effects on laminar boundary-layer separation. (JA) 207
——Comment on "Skin friction on porous surfaces calculated by a simple integral method." (AIAA J, TC) 1356
Ingram, Charles W. (AIAA J, SYN; see Martin, James M.)
Inouye, Mamoru (AIAA J; see Rizzi, Arthur W.)
Intrieri, Peter F. and Malcolm, Gerald N. Ballistic range investigation of sonic-boom overpressures in water. (AIAA J) 510
Inutake, Masaaki (AIAA J, SYN; see Kuriki, Kyoichi)
Irons, Alexander S. (A/A, June; see Wardle, Michael D.)
Irons, Bruce M. and Razzaque, Abdur Introduction of shear deformations into a thin plate displacement formulation. (AIAA J, TN) 1438
Isaac, J. J. and Cookson, R. A. Supersonic combustion aid for liquid and gaseous fuels. (AIAA J, TN) 1036
Isaacson, L. K. and Peterson, R. L. Selected statistical properties in the inner region of a transpired turbulent boundary layer. (AIAA J, TN) 1758
Ishii, Ryuji Entropy in nonequilibrium nozzle flows of vibrationally relaxing diatomic gases. (AIAA J, SYN) 137
Isogai, Koji and Ichikawa, Teruo Lifting-surface theory for a wing oscillating in yaw and sideslip with an angle of attack. (AIAA J) 599
Iversen, J. D. (AIAA J, SYN; see Power, H. L.)
——Correlation of Magnus force data for slender spinning cylinders. (JSR) 268
Ivy, George W. (JSR, EN; see Kirby, Cecil E.)
Iyengar, S. (JSR; see Orlik-Rückemann, K. J.)
——(JSR, EN; see Orlik-Rückemann, K. J.)

Jackson, Frederick A. (JSR, EN; see Zafran, Sidney)
Jacobsen, R. A. and Eubank, H. P. Evidence of fireball phenomena in hollow cathode of electron bombardment ion thrusters. (AIAA J, TN) 399
Jacobson, Ira D. and Morton, J. B. Influence of boundary-layer stability on the Magnus effect. (AIAA J, SYN) 8
——**and Kuhlthau, A. Robert** Determining STOL ride quality criteria—passenger acceptance. (JA) 163
Jaffe, N. A. Droplet dynamics in a hypersonic shock layer. (AIAA J, TN) 1562
Jaffe, Peter Nonplanar tests using the wind-tunnel free-flight technique. (JSR) 435
Jakubowski, Antoni K. and Lewis, Clark H. Experimental study of supersonic laminar base flow with and without suction. (AIAA J) 1670
Jarvinen, Philip O. Aircraft wing-tip vortex modification. (JA, EN) 63
——**and Hill, Jacques A. F.** Penetration of retrorocket exhausts into subsonic counterflows. (JSR, EN) 85
——Wind shear payload support system. (JA, EN) 189
——(JA, EN; see Hill, Jacques A. F.)
Jazwinski, Andrew H. Nonlinear and adaptive estimation in re-entry. (AIAA J) 922
Jeffrey, N. E. and Eames, M. C. Canadian advances in surface-piercing hydrofoils. (JH) 85
Jeng, D. R. and Williams, Donald W. Transpiration cooling in three-dimensional laminar boundary-layer flow near a stagnation point. (AIAA J, TN) 1560
Jezewski, Donald J. *N*-Burn optimal analytic trajectories. (AIAA J) 1373
Joglekar, A. M., Phadke, M. S., and Wu, S. M. Iterative modeling of interior ballistics of small arms. (JSR) 450
Johns, D. J. Self-weight-buckling of vertical circular cylindrical shells. (AIAA J, TN) 392
Johnson, C. D. Optimal desaturation of momentum exchange control systems. (AIAA J, ERR) 768
Johnson, C. P. (AIAA J, TN; see Oden, J. T.)
Johnson, David A. (AIAA J; see Campion, Guy)
Johnson, David B. Precession rate matching for a space station in orbit about an oblate planet. (JSR, EN) 467
Johnson, Dennis A. Insensitivity of single particle time domain measurements to laser velocimeter "Doppler" ambiguity. (AIAA J, TN) 890
Johnson, Donald E. and Boucher, Roland J. Edge buckling of cylindrical shells with low-in-plane shear moduli. (AIAA J, TN) 551
Johnson, Francis S. SSTs, ozone, and skin cancer. (A/A, July 16
Johnson, Gail R. (JSR, EN; see Schappell, Roger T.)
Johnson, Ivan L., Jr. and Kamm, James L. Accelerating one-dimensional searches. (AIAA J, TN) 757
——**and Kamm, James L.** Accelerating one-dimensional searches. (AIAA J, ERR) 1456
Johnson, R. A. (AIAA J, TC; see de Boer, P. C. T.)
Johnson, Rodney W. (A/A, May; see Naugle, John E.)
Johnson, Ronald A. (JA, EN; see Crimi, Peter)
Johnson, R. S. (JH, SA; see Leopold, R.)
——**Fuller, Arthur L., Claffey, James A., Bjorklund, Fritz R., and Thompson, Bernard M.** Man-computer graphics in preliminary ship design. (JH) 11
Johnson, Wayne A perturbation solution of helicopter rotor flapping stability. (JA, SYN) 257
Jones, B. G., Planchon, H. P., and Hammersley, R. J. Turbulent correlation measurements in a two-stream mixing layer. (AIAA J) 1146
Jones, Robert M. Buckling and vibration of unsymmetrically laminated cross-ply rectangular plates. (AIAA J) 1626
Jones, W. Linwood (AIAA J; see Kang, Sang-Wook)
Jones, W. P. and Moore, Jimmie A. Simplified aerodynamic theory of oscillating thin surfaces in subsonic flow. (AIAA J) 1305
Jordan, James F. (JSR; see Rourke, Kenneth H.)
Jordan, Peter F. Exact solutions for lifting surfaces. (AIAA J) 1123
——Structure of Betz vortex cores. (JA, EN) 691
——Buckling of toroidal shells under hydrostatic pressure. (AIAA J, TN) 1439
Jorgensen, Leland H. Estimation of aerodynamics for slender bodies alone and with lifting surfaces at α's from 0° to 90°. (AIAA J, TN) 409
Junge, Hinrich J. and Sprengel, Uwe W. Direct thrust measurements and beam diagnostics on an 18-cm Kaufman ion thruster. (JSR) 101
Justice, J. L. (JA; see Hackett, J. E.)

Kadushin, I. Conditions for stability of an ablating symmetric rolling re-entry vehicle. (JSR, EN) 808
Kaestner, Peter C. (AIAA J, TN; see Eaton, Roger R.)
Kahn, Stanley D., Oskay, Vural, and Whiteside, John Verification of ground test data by instrumented flight test of an artillery shell. (JA) 143
Kamat, M. P. (AIAA J, SYN; see Simitses, G. J.)
Kaminer, H., Jr. (AIAA J, TC; see Rhodes, C. A.)
Kamm, James L. (AIAA J, TN; see Johnson, Ivan L., Jr.)
——(AIAA J, ERR; see Johnson, Ivan L., Jr.)
Kana, Daniel D. and Huzar, Stephen Synthesis of shuttle vehicle damping using substructure test results. (JSR) 790
Kane, Edward J. Review of current sonic boom studies. (JA) 395
Kane T. R. (JSR; see Cronin, R. H.)
——(AIAA J; see Teixeira-Filho, Djalma R.)
Kang, Sang-Wook, Jones, W. Linwood, and Dunn, Michael G. Theoretical and measured electron-density distributions at high altitudes. (AIAA J) 141
Kao, Jao-Shiun Differential equations for asymmetric bending of circular sandwich plates. (AIAA J, TN) 573
Kaplan, A. E. (AIAA J; see Kiel, R. E.)
Kaplan, Marshall H. All-electric thruster control of a geostationary communications satellite. (JSR) 119
——**and Cenker, Robert J.** Control of spin ambiguity during reorientation of an energy dissipating body. (JSR) 757

Kappus, Hans-Peter F. (JA; see Triplett, William E.)
Karnik, K. S. (JSR, EN; see Rao, B. S.)
Kase, P. G. Computerized meteoroid protection system design for an outer-planet spacecraft. (JSR, SYN) 625
Kaufman, Bernard and Dasenbrock, Robert Semianalytic theory of long-term behavior of Earth and lunar orbiters. (JSR) 377
Kaufman, John W. (JSR; see Susko, Michael)
Kaufman, Louis G., II, Korkegi, Robert H., and Morton, Leo C. Shock impingement caused by boundary-layer separation ahead of blunt fins. (AIAA J, SYN) 1363
Kaufman, Stanley Equations of motion of the lunar roving vehicle. (JSR) 66
Kaza, Krishna Rao Venkata Effect of steady state coning angle and damping on whirl flutter stability. (JA) 664
Kazin, S. B. (JA; see Benzakein, M. J.)
Keat, James E. Supplementary active stabilization of nonrigid gravity gradient satellites. (JSR, SYN) 97
Keener, Earl R. and Hopkins, Edward J. Van Driest generalization applied to turbulent skin friction and velocity profiles measured on the wall of a Mach 7.4 wind tunnel. (AIAA J, TN) 1784
Kelley, Henry J. and Lefton, Leon Differential turns. (AIAA J) 858
——**and Sullivan, Henry C.** Roll-modulated lifting entry optimization. (AIAA J) 913
Kelly, Arnold J. (JSR; see Ludwig, Dennis E.)
Kelly, P. J., McKee, H. B., and Patten, T. C. Cryogenic liquid O_2/H_2 reaction control systems for space shuttle. (JSR) 496
Kemp, Nelson H. Closed-form lift and moment for Osborne's unsteady thin-airfoil theory. (AIAA J, TC) 1358
Kendle, D. W. (JSR; see Cady, E. C.)
Kenworthy, Michael and Schetz, Joseph A. Experimental study of slot injection into a supersonic stream. (AIAA J, SYN) 585
Kerzner, Harold (AIAA J; see Krier, Herman)
Kessler, T. J. (AIAA J; see Kiel, R. E.)
Khatua, T. P. and Cheung, Y. K. Stability analysis of multilayer sandwich structures. (AIAA J, SYN) 1233
Kibler, James F. Round trip Mars missions using looping trajectories in the 1980–2000 time period. (JSR, EN) 686
Kidd, Philip W. (JSR, EN; see Zafran, Sidney)
Kidder, Robert L. Reduction of structural frequency equations. (AIAA J, TN) 892
Kiel, R. E., Bergeron, R. F., Jr., Kessler, T. J., and Kaplan, A. E. Boundary-layer plasma of a re-entry vehicle: A comparison of prediction models and flight measurements. (AIAA J) 1235
Kilgore, Robert A. (AIAA J; see Goodyer, Michael J.)
Kilmer, E. E. Plastic bonded, thermally stable explosive for an Apollo experiment. (JSR) 463
Kim, H. W. (AIAA J; see Yang, T. Y.)
Kim, Thomas J. Plane stress analysis of an annular disk with distorted inner hold. (AIAA J, ERR) 768
Kimura, Itsuro and Kumazawa, Ryuhei A low-power MPD thruster of duoplasmatron type. (JSR, EN) 472
King, W. S. (AIAA J; see Mirels, H.)
Kinslow, Max An analytical study of hypersonic inlets in free molecule flow. (AIAA J, TN) 1205
Kirby, Cecil E. and Ivy, George W. Flow areas for series-parallel compartment venting to satisfy pressure differential requirements. (JSR, EN) 350
Kirmser, P. G. (AIAA J, TN; see Woo, H. K.)
Kirsch, A. A. A proposed entry vehicle dynamic model. (JSR) 767
Kisslinger, R. L. and Vetsch, G. J. Synthesis of a FBW system for an F-4. (JA) 414
Klimas, Paul C. Helium bubble survey of an opening parachute flowfield. (JA, EN) 567
Klineberg, John M. (AIAA J; see Steger, Joseph L.)
Klosner, Jerome M. and Longhitano, Ronald Nonlinear dynamics of hemispherical shells. (AIAA J) 1117
Klujber, Frank Development of sonic inlets for turbofan engines. (JA) 579
Knepper, Donald P. (JA, EN; see Smetana, Frederick O.)
Knight, Charles J. (AIAA J, SYN; see Buonadonna, Victor R.)
Knight, Charles V. Experimental investigation of two-dimensional, supersonic flow impingement on a normal surface. (AIAA J, TN) 233
Knott, Joseph (AIAA J, TN; see Anderson, John D., Jr.)
Kobiske, Michael (AIAA J; see Bratanow, Theodore)
Kollrack, R. and Aceto, L. D. Nitric oxide formation in gas turbine combustors. (AIAA J) 664
Koncsek, Joseph L. (JA; see Syberg, Jan)
Konish, H. J., Jr., Swedlow, J. L., and Cruse, T. A. Fracture phenomena in advanced fiber composite materials. (AIAA J) 40
Korkegi, Robert H. (AIAA J, SYN; see Kaufman, Louis G., II)
——A simple correlation for incipient turbulent boundary-layer separation due to a skewed shock wave. (AIAA J, TN) 1578
Koziak, W. W. and Sullivan, P. A. Interaction of a laminar hypersonic boundary layer with a corner expansion wave. (AIAA J, SYN) 1057
——(AIAA J, TN; see Sullivan, P. A.)
Krabill, W. B. (AIAA J; see Aldrich, G. T.)
Kraff, Louis, Jr. A space and missile test center of the future. (A/A, June) 64
Kraft, E. M. and Lo, C. F. A general solution for lift interference in rectangular ventilated wind tunnels. (AIAA J, SYN) 1365
Krane, Robert J. and Holmes, Leroy A. Experimental study of the effects of low bond number sloshing on thermal stratification. (AIAA J, SYN) 1219
Kreindler, Eliezer Optimality of proportional navigation. (AIAA J, TN) 878
Kriegsman, Bernard A. (JSR; see Gustafson, Donald E.)
Krier, Herman and Kerzner, Harold Analysis of the chemically reacting laminar boundary layer during hybrid combustion. (AIAA J) 1691
Krishnaswamy, T. N., Rao, G. N. V., and Reddy, K. R. Blockage corrections for large bluff bodies near a wall in a closed jet wind tunnel. (JA, EN) 634
Krogull, B. (JA; see Herbst, W. B.)
Kruger, C. H. (AIAA J; see Evans, R. M.)
Krupp, William E. and Hoeppner, David W. Fracture mechanics applications in materials selection, fabrication sequencing and inspection. (JA) 682
Kuchta, B. J. (JSR, SYN; see Howell, L. J.)
Kuhlthau, A. Robert (JA; see Jacobson, Ira D.)
Kumar, K. (AIAA J; see Dokainish, M. A.)
Kumazawa, Ryuhei (JSR, EN; see Kimura, Itsuro)
Kunio, T. (JSR, EN; see Toda, Y.)
Kunukkasseril, Vincent X. (AIAA J; see Swamidas, A. S. J.)
——(AIAA J; see Palaninathan, R.)
Kuo, Ching-chiang, Morino, Luigi, and Dugundji, John Nonlinear interaction of panel flutter with harmonic forcing excitation. (AIAA J, SYN) 419
Kuo, K. K. (JSR; see Turk, S. L.)
——**Vichnevetsky, R., and Summerfield M.** Theory of flame front propagation in porous propellant charges under confinement. (AIAA J) 444
——(AIAA J; see Peretz, A.)
Kuriki, Kyoichi and Inutake, Masaaki Establishment of quasi-steady operation in a pulsed MPD arcjet. (AIAA J, SYN) 133
Kurkov, Anatole P. (AIAA J, SYN; see Burrows, Marshall C.)
Kurn, Arthur G. Comment on "Reduction of noise from supersonic jet flows." (AIAA J, TC) 254
Kush, Edward A. Jr. and Schetz, Joseph A. Liquid jet injection into a supersonic flow. (AIAA J, SYN) 1223
Kutler, Paul (AIAA J; see Warming, R. F.)
——**Warming, R. F., and Lomax, Harvard** Computation of space shuttle flowfields using noncentered finite-difference schemes. (AIAA J) 196
——**Reinhardt, W. A., and Warming, R. F.** Multishocked, three-dimensional supersonic flowfields with real gas effects. (AIAA J) 657
Kyser, James B. (AIAA J; see Hickman, Roy Scott)

Labbe, Jean (JSR; see Le Grives, Emile)
LaBerge, J. G. (JSR; see Orlik-Ruckemann, K. J.)
Laderman, A. J. (AIAA J, TN; see Demetriades, A.)
LaFavor, S. A. (JA; see Czysz, P.)
Laganelli, Anthony L. and Fogaroli, Richard P. Downstream influence of film-cooling in a high-speed laminar boundary layer. (AIAA J, SYN) 581
Lai, Ying-San Transient stresses in laminated structures. (AIAA J, TN) 1761
Laitone, E. V. and Lin, Wen-Fan Stability criteria for accelerating and decelerating aircraft. (JA, SYN) 129
Lakshmikantham, C. (AIAA J; see Wan, F. Y. M.)
Lam, T. T. (AIAA J; see Armaly, B. F.)
Lamb, J. Parker (JSR, EN; see Bertin, John J.)
Lan, Chuan-Tau An improved nonlinear lifting-line theory. (AIAA J, TN) 739
Lancaster, E. R. Preliminary orbit determination for lunar satellites. (AIAA J, TN) 558
Lancaster, J. E. and Allemann, R. A. Numerical analysis of the asymptotic two-point boundary value solution for N-body trajectories. (AIAA J, SYN) 259
Landy, Robert J. (JA; see Triplett, William E.)
Latham, Eldon A. and Sorensen, Norman E. Method for increasing wind tunnel Mach number for large-scale inlet testing. (JA, SYN) 577
——(JA; see Sorensen, Norman E.)
Laurenson, Robert M., Melliere, Ronald A., and McGehee, John R. Analysis of legged landers for the survivable soft landing of instrument payloads. (JSR) 208
Lavan, Zalman (AIAA J; see Shavit, Gideon)
Laws, E. M. (AIAA J; see Livesey, J. L.)
Layton, J. Preston and Grey, Jerry New space transportation systems. (A/A, February) 12
Lazdinis, S. S. and Carpenter, R. F. Nitrogen temperature determination in arc tunnel air flows. (AIAA J, TN) 1416
Lee, B. G. and Boain, R. J. Propellant requirements for midcourse velocity corrections. (JSR) 779
Lee, H. F. and Petrie, S. L. Electron beam visualization in hypersonic airflows. (JA) 239
Lee, J. B., Incropera, F. P., and Peterson, R. C. Measurement of arc radiation for selected spectral regions. (AIAA J, TN) 1455
Lee, Teh H. A dynamic analysis for elastic structures interacting with rotating machinery. (JA) 45
Lee, W. H. (A/A, May; see Poupard, R. E.)
Leech, John W., Witmer, Emmett A., and Morino, Luigi Dynamically-induced large deformations of multilayer, variable thickness shells. (AIAA J, TN) 1189

Lefton, Leon (AIAA J; see Kelley, Henry J.)
Le Grives, Emile and Labbe, Jean French research on cesium contact ion sources. (JSR) 113
Lemmon, E. Clark and Coleman, Hugh W. Turbulent heat transfer to a fin leading edge—flight test results. (AIAA J, TN) 571
——(JSR, EN; see Coleman, Hugh W.)
Lengyel, L. L. Exact steady-state analogy of transient gas compression by coalescing waves. (AIAA J, TN) 1347
Leopold, R., Johnson, R. S., Hadler, J. B., and Genalis, P. Low-water plane multihull ship principles, status, and plans for naval development. (JH, SA) 49
Lepore, J. A. and Stoltz, R. A. Stability of a stochastically excited nonlinear cylindrical shell. (AIAA J) 801
Lessmann, R. C. (AIAA J; see White, F. M.)
——**and Cristoph, George H.** Calculation of turbulent skin friction on a rotating disk. (AIAA J, TN) 542
——**and Christoph, George H.** Calculation of turbulent skin friction on a rotating disk. (AIAA J, ERR) 1600
——(AIAA J, TN; see Christoph, George H.)
Levin, Eugene The future shock of information networks. (A/A, November) 52
Levitt, Ben B. (A/A, October; see Hunt, Jack R.)
Lewis, Clark H. (AIAA J; see Jakubowski, Antoni K.)
Lewolt, John G. (JA; see Stauffer, Warren A.)
Libby, Paul A. (AIAA J; see Wu, Peter)
——(AIAA J, TN; see Wu, Peter)
——**and Scragg, Carl A.** Diffusion of heat from a line source downstream of a turbulence grid. (AIAA J, TN) 562
Liebeck, Robert H. A class of airfoils designed for high lift in incompressible flow. (JA) 610
——**and Smyth, D. N.** Study of slat-airfoil combinations using computer graphics. (JA, EN) 254
Lieblein, S. (JA; see Diedrich, J. H.)
——**Yuska, J. A., and Diedrich, J. H.** Performance characteristics of a model VTOL lift fan in cross flow. (JA) 131
Likins, Peter W. (JSR, SYN; see Vanyo, James P.)
——**Barbera, Frank J., and Baddeley, Victor** Mathematical modeling of spinning elastic bodies for modal analysis. (AIAA J) 1251
——(AIAA J; see Barbera, Frank J.)
——(JSR, EN; see Schneider, C. C., Jr.)
Lilley, David G. Prediction of inert turbulent swirl flows. (AIAA J) 955
Lin, J. T. Analysis of gas flow through a multilayer insulation system. (AIAA J) 995
Lin, Yu-Jyi (AIAA J; see Wang, James Ting-Shun)
Lin, Y. K. (AIAA J; see Fujimori, Yoshinori)
——(AIAA J, TN; see Fujimori, Yoshinori)
Lin, Wen-Fan (JA, SYN; see Laitone, E. V.)
Lincoln, Kenneth A., Howe, John T., and Liu, Tsong-Mou Assessment of chemical nonequilibrium for massively ablating graphite. (AIAA J, TN) 1198
List, Bernard DAIS: A major crossroad in the development of avionic systems. (A/A, January) 55
Liu, Chang-yu and Dai, Yau-tien Axisymmetrical turbulent boundary layer along a slender cylinder. (JH, EN) 133
——Asymptotic suction flow of power-law fluids. (JH, EN) 135
Liu, T.-M. and Nachtsheim, P. R. Numerical stability of boundary layers with massive blowing. (AIAA J, TN) 1197
——(AIAA J, TN; see Lincoln, Kenneth A.)
——**and Nachtsheim, Philip R.** Shooting method for solution of boundary-layer flows with massive blowing. (AIAA J, TN) 1584
Livesey, J. L. and Laws, E. M. Simulation of velocity profiles by shaped gauze screens. (AIAA J) 184
Livingston, John M. (JSR; see Trautwein, Wolfgang)
Lo, C. F. (AIAA J, SYN; see Kraft, E. M.)
Lomax, Harvard (AIAA J; see Warming, R. F.)
(AIAA J; see Kutler, Paul)
Long, J. E. (A/A, October; see Rasool, S. I.)
Longhitano, Ronald (AIAA J; see Klosner, Jerome M.)
Longman, Richard W. Stable tumbling motions of a dual-spin satellite subject to gravitational torques. (AIAA J) 916
Lou, Y. S. and Barton, L. O. Entrance region heat transfer between parallel plates with uniform wall temperature. (AIAA J, TN) 393
Love, Eugene S. Advanced technology and the space shuttle. (von Karman Lecture; A/A, February) 30
Lu, Y. P., Douglas, B. E., and Thomas, E. V. Mechanical impedance of damped three-layered sandwich rings. (AIAA J) 300
Luckert, Hans-Joachim Static stability and drag studies for bodies of revolution in supersonic flow. (JSR) 703
Ludwig, C. B. (AIAA J, SYN; see Acton, L. L.)
Ludwig, Dennis E. and Kelly, Arnold J. Optimal quasi-steady plasma thruster system characteristics. (JSR) 165
Lull, W. R. (JA, EN; see Cross K. R.)
Lundell, John H. and Dickey, Robert R. Ablation of ATJ graphite at high temperatures. (AIAA J) 216
Lutze, Frederick H. (JA, TC; see Cliff, Eugene M.)
Lyon, T. A. and Hillery, R. D. Geared fan engine systems—Their advantages and potential reliability. (JA) 361
Lyu, Chung-Hsein (AIAA J, TN; see Peddieson, John, Jr.)

MacCallum, Douglas H. ERTS data for everyman. (A/A, April) 43
Macha, John M. (JSR; see Norton, David J.)
Mackison, D. L., Gutshall, R. L., and Volpe, F. Star scanner attitude determination for the OSO-7 spacecraft. (JSR) 262
Madson, J. M. (AIAA J, TN; see Mullen, J. H.)
Mahig, J. Effect of sweep angle and drag on the flutter speed of hydrofoils. (JH) 104
Maiti, Manoranjan Stresses in anisotropic nonhomogeneous cylinders. (AIAA J, TN) 1326
Maitra, Manoj, Majumdar, Kamalesh, and Das, Aniruddha Unified plastic yield criterion for ductile solids. (AIAA J, TN) 1428
Majumdar, Kamalesh (AIAA J, TN; see Maitra, Manoj)
Malchow, H. L. (JSR; see Gray, C. R.)
Malcolm, Gerald N. (AIAA J; see Intrieri, Peter F.)
Malkmus, W. (AIAA J, SYN; see Acton, L. L.)
Mamada, Hiroshi and Ando, Shigenori Minimum induced drag of a hemi-circular ground effect wing. (JA) 660
Mandl, A., Fogelson, S. A., and Hester, S. D. Chemical modeling experimental facility. (AIAA J) 1711
Manheimer-Timnat, Y. (JSR, SYN; see Zeierman, I.)
Maples, Glennon (JH; see Amos, Robert G.)
Maran, Stephen P. and Hobbs, Robert W. A great comet coming KOHOUTEK. (A/A, October) 48
Marchese, V. P., Rakowsky, E. L., and Bement, L. J. A fluidic sounding rocket motor ignition system. (JSR) 731
Marchman, J. F., III (JA; see Mason, W. H.)
Marinescu, Al Isoperimetric formulation for some problems of optimization of the entry into atmosphere. (AIAA J, TN) 1768
Marlowe, M. B. (AIAA J, TN; see Almroth, B. O.)
Marsh, H. E., Jr. and Udlock, D. E. Formulating propellants for fully case-bonded end-burning motors. (JSR, ERR) 288
Marshall, Billy W. and Trujillo, Amado A. Experimental evaluation of a roll control system for a shrouded cone. (JSR) 362
Marshall, Franklin L. Prediction of inlet duct overpressures resulting from engine surge. (JA) 274
Marshall, Larry R. (JH; see Nayfeh, Ali H.)
Martellucci, A., Chaump, L., Rogers, D., and Smith, D. Experimental determination of the aeroacoustic environment about a slender cone. (AIAA J) 635
Martin, James A. Optimum stage weight distribution of multistage rockets. (AIAA J, TC) 255
Martin, James M. and Ingram, Charles W. Experimental correlation between the flow and Magnus characteristics of a spinning ogive-nose cylinder. (AIAA J, SYN) 901
Martin, S. C. (JA; see Davies, W. D. T.)
Mason, W. H. and Marchman, J. F., III Far-field structure of aircraft wake turbulence. (JA) 86
Masoud, Tariq (AIAA J, TN; see Amick, James L.)
Masson, Bruce S. (AIAA J; see Alber, Irwin E.)
Mateer, George G. The effect of angle of attack on boundary-layer transition on cones. (AIAA J, ERR) 256
Matkins, E. H. (JSR; see Bauer, R. C.)
Matsuzaki, Yuji Natural vibration and flutter of cylindrically curved panels. (AIAA J, SYN) 771
Matteson, Thomas D. (A/A, August; see Smith, Anthony M.)
Mau, Sheng-Taur, Pian, Theodore H. H., and Tong, Pin Vibration analysis of laminated plates and shells by a hybrid stress element. (AIAA J, TN) 1450
Maxwell, Barry R. and Wessling, F. C. Approximation to the collisional-radiative recombination coefficient in a partially ionized gas. (AIAA J, TN) 1048
McAssey, Edward, Jr. (AIAA J, TN; see Sherman, Arthur)
McCaughey, Owen J. (JSR, EN; see Halbach, Carl R.)
McCloskey, John W. Some aircraft flight conditions relating to LO-LOCAT. (JA) 244
McCormick, M. P. and Fuller, W. H., Jr. Lidar techniques for pollution studies. (AIAA J, TN) 244
McCroskey, W. J. Inviscid flowfield of an unsteady airfoil. (AIAA J) 1130
McDermott, A. M. Hyperbolic orbit equations with asymptote-based coordinates. (JSR, SYN) 5
McDevitt, John B. Effect of thermally expanding surfaces on aerodynamic roll torques for cones. (AIAA J) 505
McDowell, Jerry L. (JA, ERR; see Graham, Ralph E.)
McGehee, John R. (JSR; see Laurenson, Robert M.)
McGregor, R. C., Wright, A. J., and Swales, P. D. Explanation of forces on a surface piercing strut after ventilation. (JH, EN) 132
McIntosh, Samuel C., Jr. Effect of hypersonic nonlinear aerodynamic loading on panel flutter. (AIAA J) 29
McKee, H. B. (JSR; see Kelly, P. J.)
McKinney, Howard F. and Dutton, Richard A. A facility for long-term ion thruster system testing. (JSR) 42
McKinzie, Daniel J., Jr. Plastic set of smooth large radii of curvature thermal conductance specimens at light loads. (AIAA J, SYN) 263
McLean, John D. and Tobias, Leonard An interactive real time simulation for scheduling and monitoring of STOL aircraft in the terminal area. (JA) 372
McLellan, Alden Remote sensing of atmospheric turbidity variation by satellite. (JSR, EN) 743
McMahon, H. (JA; see Mikolowsky, W.)
McRuer, Duane Development of pilot-in-the-loop analysis. (JA, SA) 515
Medgyesi-Mitschang, L. N. (AIAA J, TN; see Mullen, J. H.)
Meeks, D. (JH; see Edgerton, A. T.)

Mei, Chuh Finite element analysis of nonlinear vibration of beam columns. (AIAA J, TN) 115
Meier, Robert R. Looking at the solar system in the far-ultraviolet. (A/A, October) 18
Meier, Thomas C. Performance potential of the colloid core reactor concept in near-Earth applications. (JST) 571
Meirovitch, Leonard and Calico, Robert A. A comparative study of stability methods for flexible satellites. (AIAA J) 91
Melliere, Ronald A. (JSR; see Laurenson, Robert M.)
Mellor, George L. and Herring, H. James A survey of the mean turbulent field closure models. (AIAA J, SA) 590
Mente, Lawrence J. Dynamic nonlinear response of cylindrical shells to asymmetric pressure loading. (AIAA J) 793
Mercanti, Enrico P. ERTS-1: Teaching us a new way to see. (A/A, September) 36
Mermagen, William H. (JSR; see Whyte, Robert H.)
Merritt, D. C. (JSR; see Gray, C. R.)
Merritt, Gordon and Rudinger, George Thermal and momentum diffusivity measurements in a turbulent stratified flow. (AIAA J) 1465
Merz, Richard A., Page, Robert H., and Przirembel, Christian E. G. Effect of base mounted cylinders on a supersonic near wake. (JSR, EN) 470
Meyer, F. Locus of a one-dimensional shock front caused by a disturbance moving on a circle. (AIAA J, TN) 408
Meyer, George E. and Boulter, Michael J. Bird control at the airport. (A/A, December) 55
Micale, Edward C. and Poli, Corrado Dynamics of slung bodies utilizing a rotating wheel for stability. (JA, EN) 760
Michels, Charles J. and York, Thomas M. Exhaust flow and propulsion characteristics of a pulsed MPD-arc thruster. (AIAA J, SYN) 579
Mikolowsky, W. and McMahon, H. An experimental investigation of a jet issuing from a wing in cross flow. (JA) 546
Milder, Nelson L. and Sovey, James S. Star tracking through the exhaust beam of mercury bombardment thrusters. (JSR) 47
Miller, Boyce E. and Hack, Harvey P. Impressed-current cathodic protection of aluminum-hulled craft. (JH) 108
Miller, B. P., Beck, George A., and Barletta, Joseph M. High resolution multispectral camera system for ERTS A & B. (JSR) 638
Miller, Gabriel Mathematical formulation of viscous-inviscid interaction problems in supersonic flow. (AIAA J) 938
Mills, George and Dauksys, Richard J. Effects of prestressing boron/epoxy prepreg on composite strength properties. (AIAA J, SYN) 1459
Minkowycz, W. J. (AIAA J; see Bishop, William M.)
Mirels, H., Hofland, R., and King, W. S. Simplified model of CW diffusion-type chemical laser. (AIAA J) 156
Mirly, Kenneth A. and Selberg, B. P. Support wire disturbances in near viscous wakes of slender supersonic bodies. (JSR, EN) 474
Mitchell, R. T. and O'Neil, W. J. Maneuver design and implementation for the Mariner 9 mission. (JSR) 723
Mitra, Reba (AIAA J, TN; see Niyogi, Pradip)
Miura, H. (JA, SYN; see Fox, R. L.)
Modi, V. J. and Pande, K. C. Solar pressure control of a dual-spin satellite. (JSR) 355
——**and Shrivastava, S. K.** Optimized performance of a semipassive aerodynamic controller. (AIAA J) 1080
——**and Pande, K. C.** Solar pressure induced librations of spinning axisymmetric satellites. (JSR, EN) 615
Moe, Mildred M. and Tsang, Louis C. Drag coefficients for cones and cylinders according to Schamberg's model. (AIAA J, TN) 396
Moghe, S. R. Analysis of centrifugal stresses in anisotropic viscoelastic cylinder. (AIAA J) 723
Molder, Sannu (AIAA J, ERR; see D'Souza, Norbert)
Montegani, F. (JA; see Benzakein, M. J.)
Mook, Dean T. (JH; see Nayfeh, Ali H.)
Moore, Jimmie A. (AIAA J; see Jones, W. P.)
Morduchow, Morris and Volpe, Giuseppe Exact analytical solutions for orbits of bodies with atmospheric drag. (AIAA J, TN) 381
Moretti, Gino (AIAA J, ERR; see D'Souza, Norbert)
Morgenthaler, J. H. (AIAA J; see Zelazny, S. W.)
Morino, Luigi (AIAA J, SYN; see Kuo, Ching-chiang)
——(AIAA J, TN; see Leech, John W.)
Morris, W. Douglas (JSR, EN; see Talay, Theodore A.)
Morse, Francis (A/A, October; see Hung, Jack R.)
Morton, J. B. (AIAA J, SYN; see Jacobson, Ira D.)
Morton, Leo C. (AIAA J, SYN; see Kaufman, Louis G., II)
Moser, Alfred and Shollenberger, Carl A. Inviscid wake-airfoil interaction on multielement high lift systems. (JA, EN) 765
Motyka, Paul R. and Hall, G. Warren Comparison of geometric and response-feedback approaches to aircraft lateral-directional decoupling. (JA, TC) 698
Moyer, H. Gardner Integrals for optimal flight over a spherical Earth. (AIAA J, TN) 1441
Mudford, N. R. (AIAA J, SYN; see Stalker, R. J.)
Mueller, Thomas J. (JSR; see Sule, Wayne P.)
——(AIAA J; see Fanning, A. E.)
Muggeridge, D. B. (JSR; see Tennyson, R. C.)
Mulholland, Donald R. and Neel, Carr B. Airborne-science techniques aid shuttle planning. (A/A, May) 24
Mullen, J. H., Madson, J. M., Medgyesi-Mitschang, L. N. Ion intensity measurement in a plasma reaction channel. (AIAA J, EN) 1031
Munch, C. Lee (JA; see Paterson, Robert W.)
Munson, Bruce R. (AIAA J, TN; see Grittner, Steven F.)
Murphy, Charles H. Subharmonic behavior of a slightly asymmetric missile. (AIAA J, TN) 884
Murphy, David G. (JA; see Black, Richard E.)
Murphy, James T. and Darwin, Charles R. Lower payload costs through refurbishment and module replacement. (A/A, May) 40
Murphy, John D. (AIAA J, SYN; see Reda, Daniel C.)
Murthy, Kalayya Narayana and Christiano, Paul Design of least weight structures for prescribed buckling load. (AIAA J, TN) 1773
Murty, A. V. Krishna (AIAA J, TN; see Prasad, K. S. R. K.)

Na, T. Y. (AIAA J, TN; see Habib, I. S.)
——Comment on "Compressible boundary-layer equations solved by the method of parameter differentiation." (AIAA J, TC) 1790
Naber, Michael E. (AIAA J, TN; see Smithey, William J. H.)
Nachtsheim, Philip R. (AIAA J, TN; see Liu, Tsong-Mou)
Nagaoka, T. (JSR, EN; see Toda, Y.)
Nagendra, H. R. Laminar film boiling on inclined isothermal flat plates. (AIAA J) 72
——Transient forced convection heat transfer from an isothermal flat plate. (AIAA J, TN) 876
Nakanishi, Shigeo Durability tests of a 5-cm-diam ion thruster system. (JSR, EN) 608
Narasimhan, S. (AIAA J, TN; see Ningappa, H. S.)
Narayana, C. L. and Ramamoorthy, P. Reply by authors to Tsung Y. Na. (AIAA J, TC) 1791
Narendra, Kumpati S. and Tripathi, Shiva S. Identification and optimization of aircraft dynamics. (JA) 193
Nash, William A. Comment on "Analysis of a clamped skew plate under uniform loading." (AIAA J, TC) 255
Nath, G. Solution of nonlinear problems in magnetofluiddynamics and non-Newtonian fluid mechanics through parametric differentiation. (AIAA J, TN) 1429
Naugle, John E. and Johnson, Rodney, W. Space science plans for the shuttle era. (A/A, May) 34
——(A/A, October; see Rasool, S. I.)
Nayfeh, Ali H., Mook, Dean T., and Marshall, Larry R. Nonlinear coupling of pitch and roll modes in ship motions. (JH) 145
Nebbeling, C. (AIAA J; see Bannink, W. J.)
Neel, Carr B. (A/A, May; see Mulholland, Donald R.)
Nelson, R. B. (AIAA J; see Pickett, R. M , Jr.)
——(AIAA J, TN; see Felton, L. P.)
——**and Felton, Lewis P.** Thin-walled beams in frame synthesis. (AIAA J, ERR) 896
Nestler, D. E. (JSR; see Brewer, R. A.)
——Engineering analysis of reattaching shear layer heat transfer. (AIAA J, TN) 390
Newman, R. L. and Spicer, W. C. Thermal conductivity of mixed-composition plasma-sprayed coatings. (AIAA J, TN) 401
——(JA, EN; see Cross, K. R.)
——(JA, ERR; see Cavanagh, J. R.)
——**Cross, K. R., Spicer, W. C., Sheets, H. D., and Driskell, T. D.** Application of thermal barriers to high-temperature engine components. (JA, ERR) 256
Nicolai, Leland M. and Sanchez, Felix Correlation of wing-body combination lift data. (JA, EN) 126
Ningappa, H. S. and Narasimhan, S. Base pressures in flow expansions by hydraulic analogy. (AIAA J, TN) 727
Nissim, E. (AIAA J; see Shalev, A.)
Niyogi, Pradip and Mitra, Reba Approximate shock-free transonic solution for a symmetric profile at zero incidence. (AIAA J, TN) 751
Noor, Ahmed K. Free vibrations of multilayered composite plates. (AIAA J, TN) 1038
Northam, G. B. Effects of composition on acceleration induced burning-rate augmentation. (AIAA J) 848
Norton, David J., Macha, John M., and Young, James C. Surface temperature effect on subsonic stall. (JSR) 581
——**and White, R. E.** Striated nozzle flow with small radius of curvature ratio throats. (JSR, EN) 747
Nørstrud, Helge Transonic flow past lifting wings. (AIAA J, TN) 754
Nowak, Robert J. and Yuen, M. C. Heat transfer to a hemispherical body in a supersonic argon plasma. (AIAA J, SYN) 1463
Nunn, Robert H. and Frick, Kenneth E. Jet penetration at a sonic throat. (JSR, EN) 819

Obremski, Henry J. (AIAA J, SYN; see Goldman, Robert L.)
O'Connor, James S. (AIAA J; see Dailey, George)
O'Dell, C. R. Optical space astronomy and goals of the large space telescope. (A/A, April) 22
Oden, J. T., Akay, H. U., and Johnson, C. P. Effect of higher order terms in certain nonlinear finite element models. (AIAA J, TN) 1589
Oh, Y. H. (JH, TC; see Chang, P. K.)
Okada, Y. (JSR, EN; see Toda, Y.)
Olcott, John W. (JA; see Seckel, Edward)
O'Neil, W. J. (JSR; see Mitchell, R. T.)
Orlik-Rückemann, K. J., LaBerge, J. G., and Iyengar, S. Half- and full-model experiments on slender cones at angle of attack. (JSR) 575
——**and Iyengar, S.** Example of dynamic interference effects between two oscillating vehicles. (JSR, EN) 617
Ormiston, R. A. (JA, EN; see Crews, S. T.)

Osborne, Colin Unsteady thin-airfoil theory for subsonic flow. (AIAA J) 205
——Compressible unsteady interactions between blade rows. (AIAA J) 340
——Compressible unsteady interactions between blade rows. (AIAA J, ERR) 1360
Oskay, Vural (JA; see Kahn, Stanley D.)
Ostrowski, Peter P. (JH, EN; see Stoy, Robert L.)
Overcamp, Thomas J. and Fay, James A. Dispersion and subsidence of the exhaust of a supersonic transport in the stratosphere. (JA) 720
Ozaltin, O. (AIAA J; see Gulati, S. T.)

Padawer, G. E. Film reinforced multifastened mechanical joints in fibrous composites. (JA) 561
Padovan, Joseph Transient temperature distribution of an anisotropic half space. (AIAA J, TN) 565
——Bending stresses and strains in anisotropic semi-infinite plates with arbitrary edge and surface loadings. (AIAA J, TN) 570
——Stresses in an anisotropic half-space. (AIAA J, TN) 1194
Page, Richard J. (AIAA J, TN; see Rose, William C.)
Page, Robert H. (JSR, EN; see Merz, Richard A.)
Page, Russell J. (JSR, EN; see Halbach, Carl R.)
Palaninathan, R. and Kunukkasseril, V. X. Axisymmetric impulsive loading of shallow spherical shells. (AIAA J) 1645
Pandalai, K. A. V. (AIAA J; see Sathyamoorthy, M.)
——**and Sathyamoorthy, M.** Postbuckling behavior of orthotropic skew plates. (AIAA J, TN) 731
Pande, K. C. (JSR; see Modi, V. J.)
——(JSR, EN; see Modi, V. J.)
Panton, R. L. Analytical method for combining the interaction of inlet distortion and turbulence. (JA, ERR) 192
Pardoen, Gerard C. Deflection function for the asymmetrical bending of circular plates. (AIAA J, TN) 1341
Park, Chul, Anderson, Lewis A., and Sheldahl, Robert E. Atomic recombination rate determination through heat-transfer measurement. (AIAA J, TN) 372
Parker, Hermon M. (AIAA J, SYN; see Raghunath, Boray S.)
Parmentier, E. M. and Greenberg, R. A. Supersonic flow aerodynamic windows for high-power lasers. (AIAA J) 943
Pate, S. R. and Eaves, R. H., Jr. Sensitivity of boundary-layer transition to surface irregularities for space shuttle applications. (JSR, EN) 813
Patel, Rajni P. An experimental study of a plane mixing layer. (AIAA J) 67
Patel, V. C. (AIAA J, TC; see Bradshaw, Peter)
Paterson, Robert W., Vogt, Paul G., Fink, Martin R., and Munch, C. Lee Vortex noise of isolated airfoils. (JA) 296
——**Vogt, Paul G., and Foley, William M.** Design and development of the United Aircraft Research Laboratories Acoustic Research Tunnel. (JA) 427
Patten, T. C. (JSR; see Kelly, P. J.)
Pawlik, E. V. (JSR; see Wen, L.)
——**Goldstein, Raymond, Fitzgerald, Dennis J., and Adams, Roy W.** Ion thruster performance calibration. (JSR) 327
Pearson, W. E. and Davy, W. C. New thermodynamic functions for the C_3 molecule. (AIAA J, TN) 1207
Peddieson, John, Jr. and Lyu, Chung-Hsein Dusty hypersonic wedge flow. (AIAA J, TN) 110
——(AIAA J, TN; see Smith, Dallas G.)
Peoples, J. R. (JSR; see Clark, W. H.)
Pepper, William B. and Biesterveld, John R. An omnidirectional gliding ribbon parachute and control system. (JA) 678
Peretz, A., Kuo, K. K., Caveny, L. H., and Summerfield, M. Starting transient of solid-propellant rocket motors with high internal gas velocities. (AIAA J) 1719
Perkins, Richard W., Jr. and Thompson, David Experimental evidence of a couple-stress effect. (AIAA J, TN) 1053
Petersen, Richard H. and Waters, Mark H. Hypersonic transports—Economics and environmental effects. (JA) 334
Peterson, David L. (JSR; see Wakefield, Roy M.)
Peterson, R. C. (AIAA J, TN; see Lee, J. B.)
Peterson, R. L. (AIAA J, TN; see Isaacson, L. K.)
Petrie, S. L. (JA; see Lee, H. F.)
Pfenninger, W. (JA; see Hahn, Mansop)
Phadke, M. S. (JSR; see Joglekar, A. M.)
Philip, C. M. (AIAA J, SYN; see Fearn, D. G.)
Pian, Theodore H. H. (AIAA J, TN; see Mau, Sheng-Taur)
Pickett, R. M., Jr., Rubinstein, M. F., and Nelson, R. B. Automated structural synthesis using a reduced number of design coordinates. (AIAA J) 489
Pierson, John D. Design loadings and structural considerations for tracked air cushion research vehicle. (JA) 503
Pigache, Daniel R. A laboratory simulation of the ionospheric plasma. (AIAA J, SYN) 129
Pike, Jack Newtonian aerodynamic forces from Poisson's equation. (AIAA J) 499
Pike, Ralph W. (AIAA J; see Engel, Carl D.)
——(JSR, EN; see Balhoff, John F.)
Pikus, I. M., Goldstein, H. W., and Riethof, T. R. The remote measurement of nitric oxide from an airplane or space platform. (JSR) 190
Pilkey, Walter D. (JH; see Chang, Pin Yu)
Pinegre, M. (AIAA J; see Valentin, P.)
Pines, Samuel Uniform representation of the gravitational potential and its derivatives. (AIAA J) 1508
Pio, Richard L. Error analysis of Euler angle transformations. (AIAA J) 871
Piva, Renzo Interaction between an upstream facing wall jet and a supersonic stream. (AIAA J, SYN) 6
Pivirotto, Thomas J. Pressure and current effects on the thermal efficiency of an MPD arc used as a plasma source. (AIAA J, SYN) 12
Planchon, H. P. (AIAA J; see Jones, B. G.)
Platou, Anders S. Reply by author to F. J. Regan. (AIAA J, TC) 415
Platzer, M. F., Brix, C. W., Jr., and Webster, K. A. Linearized characteristics method for supersonic flow past vibrating shells. (AIAA J) 1302
Plaut, R. H. and Huseyin, K. Derivatives of eigenvalues and eigenvectors in non-self-adjoint systems. (AIAA J, TN) 250
Poli, Corrado and Cromack, Duane Dynamics of slung bodies using a single-point suspension system. (JA) 80
——(JA, EN; see Micale, Edward C.)
Poole, Lamont R. Effect of suspension-line viscous damping on parachute opening load amplification. (JSR, EN) 92
——Viscous damping characteristics of dacron parachute suspension-line cord. (JSR, EN) 751
Pope, Geoffrey G. Optimum design of stressed skin structures. (AIAA J) 1545
Popov, E. P. (AIAA J; see Sharifi, Parviz)
Poritzky, Siegbert B. A look at Soviet ATC and Nav facilities and avionics. (A/A, September) 69
Porter, Robert W. (AIAA J, TN; see Yoo, Chong-Yul)
Post, R. F. Nuclear fusion by magnetic confinement. (A/A, August) 50
Potter, James E. and Deckert, James C. Minimax failure detection and identification in redundant gyro and accelerometer systems. (JSR) 236
Poupard, R. E., Lee, W. H., Steele, T. D., and Hudson, F. J. Design considerations for shuttle information management. (A/A, May) 48
Power, H. L. and Iversen, J. D. Magnus effect on spinning bodies of revolution. (AIAA J, SYN) 417
——(JA, EN; see Ball, R. E.)
Powers, William F. A crude-search Davidon-type technique with application to shuttle optimization. (JSR) 710
Prabhakaran, R. Photoelastic analysis of an orthotropic ring under diametral compression. (AIAA J, SYN) 777
Prahlad, T. S. Mean velocity profiles in three-dimensional incompressible turbulent boundary layers. (AIAA J) 359
Prasad, K. S. R. K. and Murty, A. V. Krishna Galerkin finite element method for vibration problems. (AIAA J, TN) 544
Price, Charles F. (JSR; see Deyst, John J., Jr.)
Price, Donald A., Jr. (AIAA J, TN; see Ericsson, Lars E.)
Price, L. L. (AIAA J, TN; see Whitfield, D. L.)
Pritz, W. L. and Schoner, R. J. Verification of a comprehensive thrust chamber compatibility model for liquid rocket engines. (JSR) 558
Przemieniecki, J. S. Finite element structural analysis of local instability. (AIAA J) 33
Przirembel, Christian E. G. (JSR, EN; see Merz, Richard A.)
Putz, Kurt E. and Barlett, Eugene P. Heat-transfer and ablation-rate correlations for re-entry heat-shield and nosetip applications. (JSR) 15
Pyare, R. and Abu-Romia, M. M. Coupled radiation with turbulent convection in electric arcs. (AIAA J, TN) 1188
Pye, J. W. Component development for a 10-cm mercury ion thruster. (JSR) 106

Quinn, Brian Compact ejector thruster augmentation. (JA) 481
——A simple estimate of the effect of ejector length on thrust augmentation. (JA, EN) 313

Radley, Roger J., Jr., and Havener, Albert G. Application of dual hologram interferometry to wind-tunnel testing. (AIAA J, TN) 1332
Ragan, Ralph R. Stabilized. (JSR, E) 1
Raggett, Jon D. Linear theory of stall flutter. (AIAA J, TN) 733
Raghavan, K. S. and Sundararajan, V. Vibrations of an Euler beam with a system of discrete masses, springs, and dashpots. (JA, EN) 190
Raghunath, Boray S. and Parker, Hermon M. Evaluation of aerodynamic derivatives from a magnetic balance system. (AIAA J, SYN) 897
Rakowsky, E. L. (JSR; see Marchese, V. P.)
Ramamoorthy, P. (AIAA J, TC; see Narayana, C. L.)
Ramaprian, B. R. Turbulent wall-jets in conical diffusers. (AIAA J) 1684
Ramirez, A., Jr., Rao, B. M., and Cronk, A. E. Longitudinal response of an aircraft due to a trailing vortex pair. (JA, EN) 638
Rao, B. M. (JA, EN; see Ramirez, A., Jr.)
Rao, B. S., Karnik, K. S., and Gupta, V. D. A study of satellite television broadcasting systems for India. (JSR, EN) 537
Rao, G. N. V. (JA, EN; see Krishnaswamy, T. N.)
Rao, K. Singa and Amba-Rao, C. L. Comment on "Lateral vibration and stability relationship of elastically restrained circular plates." (AIAA J, TC) 1056
——**and Amba-Rao, C. L.** Reply by authors to A. H. Flax. (AIAA J, TC) 1599

Rao, N. Ramachandra (AIAA J; see Alwar, R. S.)
Rao, Prabhadara P. Streamline curvature and velocity gradient behind curved shocks. (AIAA J, TN) 1352
Rao, S. S. (JA, SYN; see Fox, R. L.)
——Reply by author to K. G. Bhatia and C. S. Rudisill. (AIAA J, TC) 1791
Rasmussen, Maurice L. (AIAA J; see Doty, Robert T.)
Rasool, S. I., Long, J. E., and Naugle, J. E. Exploring Jupiter, Saturn and their satellites. (A/A, October) 26
Rathi, Jaipal S. (AIAA J, TN; see Hall, J. Gordon)
Rathy, R. K. and Chandra, Kailash Hydrodynamic stability of density-stratified spiral flows. (AIAA J, TN) 544
Rauch, Frank J. (JA; see Chipman, Richard R.)
Rawlin, V. K., Banks, B. A., and Byers, D. C. Dished accelerator grids on a 30-cm ion thruster. (JSR) 29
Rayhawk, Stephen M. (JA; see Rolston, David R.)
Razzaque, Abdur (AIAA J, TN; see Irons, Bruce M.)
Reda, Daniel C. and Murphy, John D. Shock wave/turbulent boundary-layer interactions in rectangular channels. (AIAA J, SYN) 139
——**and Murphy, John D.** Sidewall boundary-layer influence on shock/wave/turbulent boundary-layer interactions. (AIAA J, SYN) 1367
Reddall, Walter F., III Spherically-symmetric supersonic source flow: A new use for the Prandtl-Meyer function. (AIAA J, TN) 1787
Reddy, K. R. (JA, EN; see Krishnaswamy, T. N.)
Reddy, R. S. (AIAA J, TN; see Weston, Kenneth C.)
Reding, J. Peter (JA; see Ericsson, Lars E.)
——(JSR; see Ericsson, Lars E.)
——**and Ericsson, Lars E.** Effects of delta wing separation on shuttle dynamics. (JSR) 421
——**and Guenther, Rolf A.** Analysis of normal shock noise measurements on nose-cylinder bodies. (JSR) 429
——(JSR, EN; see Ericsson, Lars E.)
Regan, F. J. Comment on "Wind-tunnel Magnus testing of a canted fin or self-rotating configuration." (AIAA J, TC) 413
Rehder, John J. Correlation of hypersonic zero-lift drag data. (JSR, EN) 622
Rehfield, L. W. Design of stiffened cylinders to resist axial compression. (JSR) 346
——Advanced elastic postbuckling analysis by a perturbation procedure. (AIAA J, TN) 759
Reichle, H. (AIAA J, SYN; see Acton, L. L.)
Reichle, Michael and Bradner, Hugh Use of accelerometers to determine tilts and displacements. (AIAA, J, TN) 735
Reid, R. L. and Tennant, J. S. Annular ring view factors. (AIAA J, TN) 1446
Reinecke, W. G. (JSR, EN; see Zappa, O. L.)
Reinhardt, W. A. (AIAA J; see Kutler, P.)
Reis, G. E. (AIAA J; see Vaughn, H. R.)
Reismann, H. (AIAA J, SYN; see Weingarten, L. I.)
Reiter, Elmar R. Ozone, aerosols, and solar radiation in the stratosphere. (JA) 710
Reshotko, Eli (AIAA J, TN; see Sherman, Arthur)
Reynolds, Thaine W. Effective specific impulse of external nuclear pulse propulsion systems. (JSR, SYN) 629
Rhodes, C. A. and Kaminer, H., Jr. Reply by authors to H. E. Eickhoff (AIAA J, TC) 895
Rhudy, R. W. (AIAA J; see Gray, J. Don)
Rice, J. S. (AIAA J, TN; see Seibert, A. G.)
Richards, Bryan E. (AIAA J, TN; see Houwink, Roel)
Richardson, Robert J. Abundance of NH_3 on Jupiter inferred from microware radiometry data. (JSR) 647
Riethof, T. R. (JSR; see Pikus, I. M.)
Rinehart, W. A. (JSR, EN; see Williamson, Ronald A.)
Ringo, Ronald L. Cost-of-ownership design philosophy for inertial navigators. (A/A, June) 59
Rizzi, Arthur W. and Inouye, Mamoru Time-split finite-volume method for three-dimensional blunt-body flow. (AIAA J) 1478
Roache, Patrick J. Base drag calculations in supersonic turbulent axisymmetric flows. (JSR, EN) 285
Robb, Barrett S. and Turcotte, Donald L. Laser produced hemispherical shock waves. (AIAA J) 836
Roberts, Barney B. (JSR; see Rochelle, William C.)
Roberts, J. B. Coherence measurements in an axisymmetric wake. (AIAA J, TN) 1569
Robinson, James C. (AIAA J, TN; see Haftka, Raphael T.)
——(AIAA J, ERR; see Haftka, Raphael T.)
Rochelle, William C., Roberts, Barney B., d'Attorre, Leo, and Bilyk, M. A. Shuttle orbiter re-entry flowfields at high angle of attack. (JSR) 783
Rogers, D. (AIAA J; see Martellucci, A.)
Rogers, David F. Transformation of the hypersonic compressible Navier-Stokes equations. (AIAA J, TN) 119
Roland, V. R. (AIAA J, TN; see Schiess, J. R.)
Rolston, David R., Rayhawk, Stephen M., and Barnes, Benny B. Advanced fighter controls flight simulator for all-systems compatibility testing. (JA) 602
Rom, J. (AIAA J; see Small, R. D.)
Romero, Jacob B. and Gruneich, Frederic A. Unsteady flow processes in a rapidly filling plenum. (AIAA J, TN) 368
Roos, Darrell G. (JSR; see Asnin, Scott K.)
Rosciszewski, J. J. and Yeh, T. T. Shock tube flow passing through a section of a linear MHD generator. (AIAA J, TN) 1756
Rose, William C., Page, Richard J., and Childs, Morris E. Incipient separation pressure rise for a Mach 3.8 turbulent boundary layer. (AIAA J, TN) 761
Ross, R. Influence of total temperature on transition in supersonic flow. (AIAA J, TN) 563
Ross, Ronald G., Jr. (AIAA J, TN; see Salama, A. Mokhtar)
Rossow, M. P. and Taylor, J. E. A finite element method for the optimal design of variable thickness sheets. (AIAA J, TN) 1566
Rossow, Vernon J. On the inviscid rolled-up structure of lift-generated vortices. (JA) 647
——Conformal mapping for potential flow about airfoils with attached flap. (JA, EN) 60
Roth, N. (JSR; see Berman, K.)
——(JSR, EN; see Berman, K.)
Rotman, Walter (AIAA J; see Hayes, Dallas T.)
Rourke, Kenneth H. and Jordan, James F. Application of sequential filtering to estimation of the interplanetary orbit of Mariner 9. (JSR) 773
Roux, J. A., Todd, D. C., and Smith, A. M. Eigenvalues and eigenvectors for solutions to the radiative transport equation. (AIAA J, ERR) 767
Rowe, William S. (JA; see Ii, Jack Morito)
Roy, Sreedhan Contribution in unsteady flow of power-law fluids. (AIAA J, TN) 238
——Unsteady boundary-layer flow of power law fluids. (AIAA J, TN) 1581
Rudinger, George (AIAA J; see Merritt, Gordon)
Rubinstein, M. F. (AIAA J; see Pickett, R. M., Jr.)
Rudisill, C. S. and Cooper, J. L. An automated procedure for determining the flutter velocity. (JA, EN) 442
——(AIAA J, TC; see Bhatia, Kumar G.)
Rudman, Richard (A/A, June; see Starr, Chauncey)
Rungaldier, Harald (AIAA J; see Fox, Jay)
Russell, David A. and Tong, Kwok-On Aerodynamics of high-performance Ludwieg tubes. (AIAA J) 642

Sagartz, Mathias J. Use of modal solutions in elastic wave propagation problems. (AIAA J, TN) 384
——(AIAA J, TC; see Forrestal, M. J.)
Saghera, S. S. (AIAA J, TN; see Weingarten, V. I.)
Salama, A. Mokhtar and Ross, Ronald G., Jr. Optimum shell design. (AIAA J, TN) 366
Salkeld, Robert and Beichel, Rudi Reusable one-stage-to-orbit shuttles: Brightening prospects. (A/A, June) 48
Sallett, D. W. The lift force due to von Karman's vortex wake. (JH) 161
Salmon, David M. and Heine, Walter Reachable sets analysis—An efficient technique for performing missile/sensor tradeoff studies. (AIAA J) 927
——Multipoint guidance—An efficient implementation of predictive guidance. (AIAA J) 1749
Salser, G. E. (AIAA J, TN; see Dauerman, Leonard)
Salvesen, Nils Seakeeping characteristics of small-waterplane-area-twin-hull ships. (JH) 3
Sanchez, Felix (JA, EN; see Nicolai, Leland M.)
Sandborn, Virgil A. (AIAA J, TN; see Cliff, William C.)
Sanders, James V., Henderson, Lee H., and White, Robin J. Effects of polyethylene-oxide solutions on the performance of a small propeller. (JH) 124
Sanders, Newell D. A quiet engine for stilling complaints. (A/A, January) 40
Sandoz, Paul L. The next careful steps in commercial aircraft structures. (A/A, July) 38
San Miguel, Anthony Design criteria for inert or consumable polymer cartridge materials. (JSR) 333
Saraniero, M. A., Caveny, L. H., and Summerfield, M. Restart transients of hybrid rocket engines. (JSR, EN) 215
Sargent, Francis W. Centralized data banks—Where public technology can go wrong. (A/A, November) 18
Sathyamoorthy, M. and Pandalai, K. A. V. Large amplitude flexural vibration of simply supported skew plates. (AIAA J) 1279
——(AIAA J, TN; see Pandalai, K. A. V.)
Satija, K. S. Potential flow about body in finite stream. (JH) 17
Sato, Junzo Inverse method of designing two-dimensional transonic airfoil sections. (AIAA J) 58
——Discrete vortex method of two-dimensional jet flaps. (AIAA J) 968
Sayano, Shoichi and Greenwald, George F. Approximate method for calculating heat transfer to yawed cylinders in laminar flow. (JSR, EN) 157
Saydah, A. R. (JSR; see Brewer, R. A.)
Saylak, Donald Induced plasticization—An inner bore surface treatment technique for solid-propellant rocket motors. (JSR) 564
Schadow, Klaus Study of gas-phase reactions in particle-laden, ducted flows. (AIAA J, TN) 1042
Schall, Wolfgang Influence of magnetic fields on anode losses in MPD-arcs. (AIAA J, SYN) 10
Schappell, Roger T. and Johnson, Gail R. Experimental and simulation study results of a planetary landing site selection system. (JSR, EN) 277
Schappelle, Robert H. (AIAA J, SYN; see Brusch, Richard G.)

Schelden, B. G. and Golden, J. O. Development of a phase change thermal control device. (JSR, SYN) 99
Schetz, Joseph A. (AIAA J, SYN; see Kenworthy, Michael)
——(AIAA J, SYN; see Kush, Edward A., Jr.)
——**Favin, Stanley, and Ehrlich, Louis W.** Density stratified, viscous flow past a flat plate. (JH) 22
——(AIAA J; see Campbell, James F.)
——(AIAA J; see Waltrup, P. J.)
——**and Favin, Stanley** Analysis of the effects of a probe in the transonic region of a nozzle. (AIAA J, TN) 1453
Schexnayder, C. J., Jr. (AIAA J, SYN; see Evans, J. S.)
Schiehlen, Werner O. Comment on "A method of earth-pointing attitude control for elliptic orbits." (AIAA J, TC) 127
——Comment on "A method of earth-pointing attitude control for elliptic orbits." (AIAA J, ERR) 1056
Schiess, James R. (AIAA J; see Compton, Harold R.)
——**Roland, V. R., and Wells, W. R.** Application of nonlinear estimators to hereditary systems. (AIAA J, TN) 1414
Schmidt, Carl F. Technology—Liberator or destroyer? (JA, E) 1
Schmidt, David K. and Swaim, Robert L. An optimal control approach to terminal area air traffic control. (JA) 181
Schmidt, J. W. (JA; see Wilhelm, W. E.)
Schmitt, George F., Jr. On the dependence of materials erosion on environmental parameters at supersonic velocities. (JA) 705
Schmitz, Fredric H. and Stepniewski, W. Z. Reduction of VTOL operational noise through flight trajectory management. (JA) 385
Schmitz, Peter D. Normal mode solution to the equations of motion of a flexible airplane. (JA, EN) 318
Schneider, C. C., Jr. and Likins, P. W. Nutation dampers vs precession dampers for asymmetric spinning spacecraft. (JSR, EN) 218
Schneider, P. J., Teter, R. D., Coleman, W. D., and Heath, R. M. Design of graphite nosetips for ballistics re-entry. (JSR) 592
Schoner, R. J. (JSR; see Pritz, W. L.)
Schreiber, P. W., Hunter, A. M., II, and Benedetto, K. R. Electrical conductivity and total emission coefficient of air plasma. (AIAA J) 815
Schroeder, Lyle C. and Akey, Norman D. Material injection alleviation during the RAM C-III flight. (JSR) 170
Schweitzer, Gerhard (JSR; see Seltzer, S. M.)
Schwiesow, Ronald L. Ramon scattering from pollutant gases and air-water interfaces. (AIAA J) 87
Schwind, R. G. (JA; see Corsiglia, V. R.)
Scoggins, James R. (JA; see Cass, Stanley D.)
——**and Incrocci, Thomas P.** Mountain waves and CAT encountered by the XB-70 in the stratosphere. (JA) 172
Scott, Robert K. and Incropera, Frank P. Nonequilibrium flow calculations for the hydrogen constricted arc. (AIAA J) 1714
Scragg, Carl A. (AIAA J, TN; see Libby, Paul A.)
Seader, J. D. (JSR; see Chidley, John D.)
——(AIAA J; see Hsieh, Chia-Lung)
——(JSR; see Hsieh, Chia-Lung)
Seckel, Edward, Ellis, David R., and Olcott, John W. Experimental landings in a spoiler-equipped light aircraft. (JA) 220
Sedney, Raymond A survey of the effects of small protuberances on boundary-layer flows. (AIAA J, SA) 782
Seebaugh, William R. Hypersonic flows in large-scale inlet models. (JA) 38
Segletes, John A. Oxidation of Poco AXF-Q1 graphite in air. (JSR) 803
Seibert, A. G. and Rice, J. S. Coupled thermally induced vibrations of beams. (AIAA J, TN) 1033
Seitz, W. R. and Goodson, R. E. Flight director design for a STOL aircraft. (JA) 491
Selberg, B. P. (JSR, EN; see Mirly, Kenneth A.)
Seltzer, S. M., Schweitzer, Gerhard, and Asner, Bernard, Jr. Attitude control of a spinning skylab. (JSR) 200
Selzer, Horst Depressurization extinguishment of composite solid propellants: Influence of composition and catalysts. (AIAA J, SYN) 1221
Sen, S. and Bainum, P. M. Motion of a dual-spin satellite during momentum wheel spin-up. (JSR) 760
Serbin, Hyman Calculation of forces on stores in the vicinity of aircraft. (JA, EN) 123
Sevik, Maurice (JH; see Tsushima, Hideya)
Shalev, A., Baruch, M., and Nissim, E. Buckling analysis of hydrostatically loaded conical shells by the collocation method. (AIAA J) 1603
Shanebrook, J. Richard and Sumner, William J. A small cross flow theory for three-dimensional, compressible, turbulent boundary layers on adiabatic walls. (AIAA J) 950
Shang, J. S., Hankey, W. L., Jr., and Dwoyer, D. L. Numerical analysis of eddy viscosity models in supersonic turbulent boundary layers. (AIAA J) 1677
Shankar, Rama Geometry of relaxing gas flows. (AIAA J, TN) 1214
Shannon, Roger L. Thermal scale modeling of radiation-conduction-convection systems. (JSR) 485
Sharifi, Parviz and Popov, E. P. Nonlinear finite element analysis of sandwich shells of revolution. (AIAA J) 715
Shavit, Gideon and Lavan, Zalman Analytical and experimental investigations of laminar mixing of confined heterogeneous jets. (AIAA J) 352
Sheaffer, Y. S. (AIAA J, SYN; see Baldwin, B. S.)
Sheets, H. D. (JA, ERR; see Newman, R. L.)
Sheinman, Izhak and Tene, Yair Potential energy of a normal pressure field acting on an arbitrary shell. (AIAA J, TC) 1216
Sheldahl, Robert E. (AIAA J, TN; see Park, Chul)
Sheldon, John W. and Stone, Nobie H. Multiring probe in a flowing ionospheric plasma. (AIAA J, TN) 1051
Shelton, Haywood (JSR, EN; see Zafran, Sidney)
Shen, S. F. and Chan, T. K. Variational approach to the lifting surface problem. (AIAA J) 1390
Sherman, Arthur, Yeh, Hsuan, Reshotko, Eli, and McAssey, Edward, Jr. Multiple slot laminar film cooling. (AIAA J, TN) 1413
Shiratori, Hirozo (AIAA J, TN; see Hirano, Toshisuke)
Shitzer, Avraham and Chambers, Alan B. Comparative study of patches for liquid cooled garments. (JSR, EN) 541
Sholar, M. S. (AIAA J; see Hall, B. M.)
Shollenberger, C. A. Analysis of the interaction of jets and airfoils in two dimensions. (JA) 267
——(JA, EN; see Moser, Alfred)
Shorr, M. (JSR, EN; see Fredericks, J. T.)
Shoup, Terry E. (AIAA J, TN; see Dopkin, Joseph A.)
Shrivastava, S. K. (AIAA J; see Modi, V. J.)
Siemers, Paul M., III (JSR; see Steinberg, Sy)
Simitses, George J., Kamat, M. P., and Smith, C. V., Jr. Strongest column by the finite element displacement method. (AIAA J, SYN) 1231
——Optimal vs the stiffened circulate plate. (AIAA J) 1409
——Determination of stiffness and critical loads of a circular plate from a simple bending test. (AIAA J, TN) 1208
Simpson, Roger L. A generalized correlation of roughness density effects on the turbulent boundary layer. (AIAA J, TN) 242
Singa-Rao, K. and Amba-Rao, C. L. Vibration of beams with overhangs. (AIAA J, TN) 1445
Sippel, David L. and Warner, William H. Minimum-mass design of multielement structures under a frequency constraint. (AIAA J) 483
Slater, Gary L. and Wells, William R. Optimal evasive tactics against a proportional navigation missile with time delay. (JSR) 309
Sliski, Neil J. (JSR; see Bramlette, T. Taz)
Small, R. D. and Rom, J. Effect of disturbances on the heat transfer of a laminar axisymmetric boundary layer. (AIAA J) 1503
Smeltzer, Donald B. (JA; see Sorensen, Norman E.)
Smetana, Frederick O. and Knepper, Donald P. Toward simpler prediction of transonic airfoil lift, drag, and moment. (JA, EN) 124
Smith, A. J., Jr. (AIAA J; see Zinn, B.)
Smith, A. M. (AIAA J, ERR; see Roux, J. A.)
Smith, Anthony M. and Matteson, Thomas D. Needed: Rational testing of aerospace vehicles. (A/A, August) 69
Smith, C. Branson NSF's experimental R&D incentives program. (A/A, May) 54
Smith, C. V., Jr. (AIAA J, SYN; see Simitses, G. J.)
Smith, C. W. (JA, EN; see Bradley, R. G.)
Smith, D. (AIAA J; see Martellucci, A.)
Smith, Dallas G., Peddieson, John, Jr., and Chung, Chin-Jer Finite deflection of a shallow spherical membrane. (AIAA J, TN) 736
Smith, Richard R. (JSR; see Bramlette, T. Taz)
Smith, Russell A. and Evbouma, S. Nosakhare Nose pressure distribution and separation on an inclined axisymmetric body. (AIAA J, TN) 125
Smith, William Hayden and Barrett, J. J. Application of Fabry-Perot interferometry to detection of Raman scattering from atmospheric pollutants. (AIAA J, SYN) 589
Smithey, William J. H. and Naber, Michael E. Sonic line for a coaxial axisymmetric nozzle. (AIAA J, TN) 569
Smithson, H. K. (AIAA J, TN; see Whitfield, D. L.)
Smyth, D. N. JA, EN; see Liebeck, R. H.)
Snyder, Virgil (AIAA J, TN; see Hallquist, John)
Solbes, Albert and Vondra, Robert J. Performance study of a solid fuel-pulsed electric microthruster. (JSR) 406
Sorensen, Norman E. (JA, SYN; see Latham, Eldon A.)
——**Smeltzer, Donald B., and Latham, Eldon A.** Advanced supersonic inlet technology. (JA) 278
Sovey, James S. (JSR; see Milder, Nelson L.)
Spencer, D. J. and Varwig, R. L. Experimental CW chemical laser studies. (AIAA J) 1000
Spencer, T. M. Attitude dynamics of a "nearly spherical" dual-spin satellite and orbital results for OSO-7. (JSR, SYN) 289
Speyer, Jason L. On the fuel optimality of cruise. (JA, EN) 763
Spicer, W. C. (AIAA J, TN; see Newman, R. L.)
——(JA, ERR; see Cavanagh, J. R.)
——(JA, ERR; see Newman, R. L.)
Sprengel, Uwe W. (JSR; see Junge, Hinrich J.)
Srinivasan, G. (AIAA J, TN; see Hall, J. Gordon)
Stalker, R. J. and Mudford, N. R. Starting process in the nozzle of a nonreflected shock tunnel. (AIAA J, SYN) 265
Starr, Chauncey and Rudman, Richard Parameters of technological growth. (A/A, June) 20
Stauffer, Warren A., Lewolt, John G. and Hoblit, Frederic M. Application of advanced methods to design loads determination for the L-1011 transport. (JA) 449
——**and Hoblit, Frederic M.** Dynamic gust, landing, and taxi loads determination in the design of the L-1011. (JA) 459
Steele, T. D. (A/A, May; see Poupard, R. E.)

Steger, Joseph L. and Baldwin, Barrett S. Shock waves and drag in the numerical calculation of compressible, irrotational transonic flow. (AIAA J, SYN) 903
——**and Klineberg, John M.** A finite-difference method for transonic airfoil design. (AIAA J) 628
——(AIAA J; see Bailey, F. R.)
Stehling, Kurt R. (A/A, October; see Hunt, Jack R.)
Steinberg, Sy, Uselton, Bob L., and Siemers, Paul M., III Viking pitch damping derivatives as influenced by support interference and test techniques. (JSR) 443
Steiner, Roy (AIAA J; see Verdon, Joseph M.)
Steinolfson, R. S. Steady-state interactions in plasma accelerators. (AIAA J, SYN) 779
——Shock formation by a moving force field. (AIAA J, TN) 1201
Stengel, Robert F. Strategies for control of the space shuttle transition. (JSR) 77
——Some effects of bias errors in redundant flight control systems. (JA) 150
Stepner, David E. Modeling of aircraft position errors with independent surveillance. (AIAA J) 1273
Stepniewski, W. Z. (JA; see Schmitz, Fredric H.)
Steven, Fred R. Door to door short haul. (A/A, March) 32
Stevens, Stanley J. and Fry, Peter Measurements of the boundary-layer growth in annular diffusers. (JA) 73
Stock, Hans W. Role of the anelastic behavior of the ablation material on cross-hatching. (AIAA J, ERR) 1056
Stoltz, R. A. (AIAA J; see Lepore, J. A.)
Stone, James R. and Gutierrez, Orlando A. Target-type thrust reverser noise. (JA) 283
Stone, Nobie H. (AIAA J, TN; see Sheldon, John W.)
Stoy, Robert L. and Ostrowski, Peter P. Analysis of gas bubble-liquid coflow systems. (JH, EN) 46
Strand, T. Exact method of designing airfoils with given velocity distribution in incompressible flow. (JA) 651
Streb, Henry A., Jr. Pilot control of shuttle orbiter during approach and landing. (JA) 105
Streckenbach, J. M. (JA; see Blumenthal, V. L.)
Stricklin, James A., Haisler, Walter E., and Von Riesemann, Walter A. Evaluation of solution procedures for material and/or geometrically nonlinear structural analysis. (AIAA J) 292
——**and Tillerson, Joe R.** Curved finite elements by the method of initial strains. (AIAA J, TN) 249
Studwell, Victor E. and Wu, Jain-Ming Prediction of airfoil shock location in transonic flow. (JA, EN) 636
Sturek, Walter B. Boundary-layer distortion on a spinning cone. (AIAA J, TN) 395
Styer, Eugene Structures for air transports. (A/A, July) 36
Subramanian, N. R. and Balakrishnan, M. Transonic flow past lifting airfoils. (AIAA J, TN) 1766
Sule, Wayne P. and Mueller, Thomas J. Annular truncated plug nozzle flowfield and base pressure characteristics. (JSR) 689
Sullivan, Henry C. (AIAA J; see Kelley, Henry J.)
Sullivan, John P., Widnall, Sheila E., and Ezekiel, Shaoul Study of vortex rings using a laser Doppler velocimeter. (AIAA J) 1384
Sullivan, P. A. (AIAA J, SYN; see Koziak, W. W.)
——**and Koziak, W. W.** Entropy layer effects in constant pressure hypersonic boundary layers. (AIAA J, TN) 730
Summerfield, M. (JSR; see Turk, S. L.)
——(AIAA J; see Kuo, K. K.)
——(AIAA J; see Peretz, A.)
——(JSR, EN; see Saraniero, M. A.)
Sumner, William J. (AIAA J; see Shanebrook, J.)
Sun, Chen-Chih and Childs, Morris E. A modified wall wake velocity profile for turbulent compressible boundary layers. (JA, EN) 381
Sun, Chin-Teh and Whitney, J. M. Theories for the dynamic response of laminated plates. (AIAA J) 178
Sundarajan, C. Vibration and stability of nondivergent elastic systems. (AIAA J, TN) 1418
Sundararajan, V. (JA, EN; see Raghavan, K. S.)
Susko, Michael and Kaufman, John W. Exhaust cloud rise and growth for Apollo Saturn engines. (JSR) 341
Sutherland, Arthur A., Jr. (AIAA J; see Deyst, John J., Jr.)
Sutton, Emmett A. (JSR, EN; see Draper, James Stark)
Sutton, George W. The AIAA journal and you. (AIAA J, E) 1
Sutton, Kenneth and Falanga, R. A. Stagnation region radiative heating with steady-state ablation during Venus entry. (JSR, EN) 155
Swaim, Robert L. (JA; see Schmidt, David K.)
Swales, P. D. (JH, EN; see McGregor, R. C.)
Swamidas, A. S. J. and Kunukkasseril, Vincent X. Buckling of orthotropic circular plates. (AIAA J) 1633
Swedlow, J. L. (AIAA J; see Konish, H. J., Jr.)
Swift, Calvin T. (AIAA J; see Dunn, Michael G.)
Syberg, Jan and Koncsek, Joseph L. Bleed system design technology for supersonic inlets. (JA) 407

Tabakoff, W. (JA; see Hussein, M. Fathy)
Talay, Theodore A., Morris, W. Douglas, and Whitlock, Charles H. An advanced technique for the prediction of decelerator system dynamics. (JSR, EN) 817
Tamekuni, M. (AIAA J; see Viswanathan, A. V.)
Tate, E. (AIAA J; see Zauderer, B.)
Tate, R. B. (JA; see Blumenthal, V. L.)
Taylor, J. E. (AIAA J, TN; see Rossow, M. P.)
Taylor, James J. and Faust, Nickolas L. Viking type spacecraft rendezvous with the Martin moons. (JSR) 520
Taylor, R. F. (AIAA J; see Gwin, L. B.)
Teixeira-Filho, Djalma, R. and Kane, Thomas R. Spin stability of torque-free systems—Part I. (AIAA J) 862
——**and Kane, Thomas R.** Spin stability of torque-free systems—Part II. (AIAA J) 868
Teller, Aaron J. Resources and pollution—Time (past?) for engineers to act. (A/A, June) 28
Tene, Yair (AIAA J, TC; see Sheinman, Izhak)
Tennant, Jeffrey S. A subsonic diffuser with moving walls for boundary-layer control. (AIAA J, TN) 240
——**and Yang, T.** Turbulent boundary-layer flow from stationary to moving surfaces. (AIAA J) 1156
——(AIAA J, TN; see Reid, R. L.)
Tennyson, R. C. and Muggeridge, D. B. Buckling of laminated anisotropic imperfect circular cylinders under axial compression. (JSR) 143
Terrier, M. (AIAA J; see Valentin, P.)
Teter, R. D. (JSR; see Schneider, P. J.)
Thomas, E. V. (AIAA J; see Lu, Y. P.)
Thomas, L. C. (AIAA J, TN; see Gerhart, P. M.)
Thomassen, K. I. and Tong, D. Interferometric density measurements in the arc of a pulsed plasma thruster. (JSR, SYN) 163
——Radiation from pulsed electric thrusters. (JSR, EN) 679
Thompson, Bernard M. (JH; see Johnson, Robert S.)
Thompson, David (AIAA J, TN; see Perkins, Richard W., Jr.)
Thompson, Robert J. Computing meteorological effects on aircraft noise. (AIAA J, TN) 121
Thomson, William T. (AIAA J; see Caravani, Paolo)
Tiffany, Charles (A/A, July; see Haviland, George P.)
Tillerson, Joe R. (AIAA J, TN; see Stricklin, James A.)
Ting, Edward C. (AIAA J; see Ginsberg, Jerry H.)
Tobias, Leonard (JA; see McLean, John D.)
Toda, Y., Nagaoka, T., Ueno, Z., Okada, Y., and Kunio, T. Failure criterion for a propellant of spherical solid rocket motor. (JSR, EN) 807
Todd, D. C. (AIAA J, ERR; see Roux, J. A.)
Todosiev, Ernest P. Periodic attitude control of a slowly spinning spacecraft. (JSR) 716
Tolson, Robert H. (JSR, EN; see Blackshear, W. Thomas)
Tombach, Ivar Observations of atmospheric effects on vortex wake behavior. (JA) 641
Tomlinson, Lloyd R. Control system design considerations for a longitudinally unstable supersonic transport. (JA) 594
Toms, Ralph M. Elimination of square roots from ballistics equations. (JSR, EN) 815
Tong, D. (JSR, SYN; see Thomassen, K. I.)
Tong, Kwok-On (AIAA J; see Russell, David A.)
Tong, Pin (AIAA J, TN; see Mau, Sheng-Taur)
Touryan, Kenell J. (AIAA J, SYN; see Bailey, Paul B.)
Trautwein, Wolfgang and Livingston, John M. Computerized optimal control system design for boost vehicles. (JSR) 227
Tripathi, Shiva S. (JA; see Narendra, Kumpati S.)
Triplett, William E., Kappus, Hans-Peter F., and Landy, Robert J. Active flutter control—An adaptable application to wing/store flutter. (JA) 669
Tripp, Leonard L. (AIAA J; see Viswanathan, A. V.)
Trujillo, Amado A. (JSR; see Marshall, Billy W.)
Tsang, Louis C. (AIAA J, TN; see Moe, Mildred M.)
Tso, F. K. W. (AIAA J, TN; see Dong, S. B.)
Tsui, C. Y. (AIAA J; see Yang, J. C. S.)
Tsuji, Hiroshi and Hirano, Toshisuke Ion-current distributions around an electrically conductive body in ionized gas flow. (AIAA J, TN) 100
——(AIAA J, TN; see Hirano, Toshisuke)
Tsushima, Hideya and Sevik, Maurice Dynamic response of marine propellers to nonuniform flowfields. (JH) 71
——**and Conway, Joseph C.** Experimental stress analysis of propeller blades utilizing photoeleastic coating techniques. (JH, EN) 41
Tucker, Henry J. and Ali, S. Firasat Decay of anisotropic turbulence. (AIAA J, TN) 546
Tuckmantel, D. L. (AIAA J, TN; see Wang, A. S. D.)
Turcotte, Donald L. (AIAA J; see Robb, Barrett S.)
Turk, S. L., Battista, R. A., Kuo, K. K., Caveny, L. H., and Summerfield, M. Dynamic responses of solid rockets during rapid pressure change. (JSR) 137
Tuttle, J. C. (JSR; see Vaage, R. D.)

Udlock, D. E. (JSR, ERR; see Marsh, H. E., Jr.)
Ueno, Z. (JSR, EN; see Toda, Y.)
Uncles, R. J. The numerical prediction of streamer growth in MHD ducts. (AIAA J, TN) 1436
Uphoff, C. Numerical averaging in orbit prediction. (AIAA J) 1512
Urbach, Kenneth On-orbit checkout and repair as a factor in economical spacecraft design and operation. (A/A, April) 60
Urban, Louis A. Gas path analysis applied to turbine engine condition monitoring. (JA) 400
Uselton, Bob L. (JSR; see Steinberg, Sy)

Vaage, R. D. and Tuttle, J. C. A computerized technique for mission profile design analysis. (JSR) 525
Vaeth, J. Gordon (A/A, October; see Hunt, Jack R.)
Vaicaitis, R. Generalized random forces for rectangular panels. (AIAA J) 984
Valentin, P., Pinegre, M., and Terrier, M. Influence of gradient of velocity upon the resonant radiative transfer in plasma flows. (AIAA J) 1698
Vamos, J. S. and Anderson, J. D., Jr. Time-dependent analysis of nonequilibrium nozzle flows with complex chemistry. (JSR, SYN) 225
Van Dyke, Peter Bottom depth effects on regular surface waves due to a submerged Rankine body with attached vertical column. (JH) 78
Van Tuyl, Andrew H. Calculation of nozzle flows using Padé fractions. (AIAA J) 537
Vanyo, James P. Cavity radius vs energy dissipation rate in liquid-filled, precessing, spherical cavities. (AIAA J, SYN) 261
——Measurement of system inertia tensors in precessing nonrigid systems. (AIAA J, SYN) 577
——**and Likins, Peter W.** Use of baffles to suppress energy dissipation in liquid-filled precessing cavities. (JSR, SYN) 627
Var, R. E. (JSR; see Gray, C. R.)
Varwig, R. L. (AIAA J; see Spencer, D. J.)
Vas, Irwin E. Heat flux probe as a flowfield diagnostic. (AIAA J, TN) 1576
Vatsa, V. N. (AIAA J, TN; see Werle, M. J.)
Vaughn, H. R. and Reis, G. E. A Magnus theory. (AIAA J) 1396
Veilleux, Eugene D. Cold-plate design analysis for electronic equipment. (JSR, EN) 680
Velkoff, Henry R. (AIAA J; see Blaser, Dwight A.)
Vendhan, C. P. and Dhoopar, B. L. Nonlinear vibration of orthotropic triangular plates. (AIAA J) 704
Ventres, C. S. (AIAA J, TN; see Dowell, E. H.)
Verdon, Joseph M. and Steiner, Roy Response of a rigid aircraft to nonstationary atmospheric turbulence. (AIAA J) 1086
Vermeulen, F. E. (AIAA J, TN; see Hepburn, J. D.)
Veronda, D. R. (AIAA J, TN; see Weingarten, V. I.)
Vetsch, G. J. (JA; see Kisslinger, R. L.)
Vichnevetsky, R. (AIAA J; see Kuo, K. K.)
Vinh, N. X. Minimum fuel rocket maneuvers in horizontal flight. (AIAA J) 165
——Integrals of the motion for optimal trajectories in atmospheric flight. (AIAA J) 700
Viswanathan, A. V., Tamekuni, M., and Tripp, Leonard L. Elastic stability of biaxially loaded longitudinally stiffened composite structures. (AIAA J) 1553
Vogt, Paul G. (JA; see Paterson, Robert W.)
Vojvodich, Nick S. PAET entry heating and heat protection experiment. (JSR) 181
Volpe, F. (JSR; see Mackison, D. L.)
Volpe, Giuseppe (AIAA J, TN; see Morduchow, Morris)
Vondra, Robert J. (JSR; see Solbes, Albert)
Von Riesemann, Walter A. (AIAA J; see Stricklin, James A.)
Vos, Robert G. and Armstrong, William H. Improved hardening theory for cyclic plasticity. (AIAA J, TN) 400

Waco, David E. and Ashburn, Edward V. Turbulence variations during the high altitude clear air turbulence (HICAT) program. (JA, EN) 56
Wagner, Jerry L. (AIAA J, TN; see Anderson, John D., Jr.)
Wagner, R. D. Optimal skin thickness variations for active cooled panels. (JA, EN) 572
Wakefield, Roy M. and Peterson, David L. Graphite ablation in combined convective and radiative heating. (JSR) 149
Walling, H. C. and Forrestal, M. J. Elastic-plastic expansion of 6061-T6 aluminum rings. (AIAA J, TN) 1196
——(AIAA J, TC; see Forrestal, M. J.)
Walton, C. R. (JH, EN; see Gilreath, H. E.)
Waltrup, P. J. and Schetz, J. A. Supersonic turbulent boundary layer subjected to adverse pressure gradients. (AIAA J) 50
——**and Billig, F. S.** Structure of shock waves in cylindrical ducts. (AIAA J) 1404
——**and Billig, F. S.** Prediction of precombustion wall pressure distributions in scramjet engines. (JSR, EN) 620
Wan, F. Y. M. and Lakshmikantham, C. Rotor blade response to random loads: A direct time-domain approach. (AIAA J) 24
Wang, A. S. D. and Tuckmantel, D. L. Elastic wave surfaces in heterogeneous anisotropic plates. (AIAA J, TN) 1571
Wang, James Ting-Shun and Lin, Yu-Jyi Stability of discretely stringer-stiffened cylindrical shells. (AIAA J) 810
Wang, Peter (JA, EN; see Cheng, Dah Yu)
Wardle, Michael D., Irons, Alexander S., and Green, Richard H. Planetary quarantine goes to work in the hospital. (A/A, June) 32
Warming, R. F., Kutler, Paul, and Lomax, Harvard Second- and third-order noncentered difference schemes for nonlinear hyperbolic equations. (AIAA J) 189
——(AIAA J; see Kutler, Paul)
Warner, William H. (AIAA J; see Sippel, David L.)
Warren, D. S. Tomorrow's structural engineering. (A/A, July) 48
Warren, R. S. (AIAA J; see Gelb, A.)
Warren, Shields Developments in space medicine. (A/A, January) 18
Wasserstrom, Eliahu Identification of parameters by the continuation method. (AIAA J) 1097
Waters, Mark H. (JA; see Petersen, Richard H.)
Watkins, C. B. Laminar symmetry-plane boundary layer on a sharp spinning body at incidence. (AIAA J, TN) 559
Watson, Ralph D. Corner pressures and fillet shock locations for symmetrical corners by an approximate method. (JSR, EN) 90
Wayte, Michael J. and Gruenich, Fredric A. Determination of rocket ignition induced silo transient pressures using an expansion tube. (JSR, EN) 602
Weathers, Terry M. NASA contributions to fluidic systems. (JSR, SYN) 417
Weber, Robert C. (AIAA J, SYN; see Davis, Robert L.)
Webster, K. A. (AIAA J; see Platzer, M. F.)
Weetman, R. J. and Cromack, D. E. Calculation of inlet flows applied to ducted propellers. (JH) 153
Weidenbaum, Murray L. Government spending and innovation. (A/A, November) 32
Weihs, D. and Gal-or, B. Calculation of shock wave relaxation zones including dissipative transport phenomena. (AIAA J, TN) 108
Weingarten, L. I. and Reismann, H. Forced motion of cylindrical shells: A comparison of shell theory with elasticity theory. (AIAA J, SYN) 769
Weingarten, V. I., Veronda, D. R., and Saghera, S. S. Buckling of segments of toroidal shells. (AIAA J, TN) 1422
Weinstein, Leonard M. Hot-wire coil probe for high-speed flows. (AIAA J, TN) 1772
Weisshaar, Terrance A. and Ashley, Holt Static aeroelasticity and the flying wing. (JA) 586
Weissman, Robert Preliminary criteria for predicting departure characteristics/spin susceptibility of fighter-type aircraft. (JA) 214
Wells, William R. (JSR; see Slater, Gary L.)
——(AIAA J, TN; see Schiess, J. R.)
Wen, L., Crotty, J. D., and Pawlik, E. V. Ion thruster thermal characteristics and performance. (JSR) 35
Wessling, F. C. (AIAA J, TN; see Maxwell, Barry R.)
Werle, M. J., Dwoyer, D. L., and Hankey, W. L. Initial conditions for the hypersonic-shock/boundary-layer interaction problems. (AIAA J) 525
——(AIAA J, TN; see Hankey, W. L.)
——**Vatsa, V. N., and Bertke, S. D.** Sweep effects on supersonic separated flows—A numerical study. (AIAA J, TN) 1763
Weston, Kenneth C. (AIAA J; see Howe, John T.)
——**and Reddy, R. S.** Reflectance and unsteady temperature distribution of diffuse reflectors. (AIAA J, TN) 1775
——(AIAA J, ERR; see Howe, John T.)
White, C. O. (AIAA J; see Grabow, R. M.)
——**and Grabow, R. M.** Crosshatch surface patterns—Comparison of experiment with theory. (AIAA J) 1316
White, Frank M. (AIAA J, TN; see Christoph, George H.)
White, F. M., Lessmann, R. C., and Christoph, G. H. Analysis of turbulent skin friction in thick axisymmetric boundary layers. (AIAA J) 821
White, K. C. (JA; see Denery, D. G.)
White, R. E. (JSR, EN; see Norton, D. J.)
White, Robin J. (JH; see Sanders, James V.)
Whiteside, John (JA; see Kahn, Stanley D.)
Whitfield, David L. Mean free path of emitted molecules and correlation of sphere drag data. (AIAA J) 1666
——**Smithson, H. K., and Price, L. L.** Plume boundary jump of an underexpanded jet exhausting counter to a freestream. (AIAA J, TN) 1336
Whitlock, Charles H. Advances in modeling aerodynamic decelerator dynamics. (A/A, April) 67
——(JSR, EN; see Talay, Theodore, A.)
Whitney, J. M. (AIAA J; see Sun, Chin-Teh)
Whyte, Robert H. and Mermagen, William H. A method for obtaining aerodynamic coefficients from yawsonde and radar data. (JSR) 384
Widnall, Sheila E. (AIAA J; see Sullivan, John P.)
Widnall, William S. Enlarging the region of convergence of Kalman filters employing range measurements. (AIAA J) 283
Wilbur, Paul J. Effects of the hollow cathode discharge on throttled ion thruster performance. (JSR, SYN) 3
——Correlation of ion and beam current densities in Kaufman thrusters. (JSR, EN) 623
Wilcox, David C. Calculation of turbulent boundary-layer shock-wave interaction. (AIAA J, TN) 1592
Wilhelm, W. E. and Schmidt, J. W. A view of air traffic control in future terminal areas. (JA) 366
Willems, Pierre Y. (AIAA J; see Campion, Guy)
Williams, Bill Advanced technology transport configuration. (JA) 323
Williams, D. (JH; see Edgerton, A. T.)
Williams, Donald W. (AIAA J, TN; see Jeng, D. R.)
Williams, F. A. Quasi-steady gas-phase flame theory in unsteady burning of a homogeneous solid propellant. (AIAA J, TN) 1328
Williams, James H., Jr. Inextensional approximations in cylindrical shells. (AIAA J, TN) 1213
Williams, Ronald R. (JSR, EN; see Williamson, Ronald A.)
Williams, S. D. (AIAA J; see Curry D. M.)
Williamson, Ronald A., Rinehart, W. A., and Williams, Ronald R. Laser activated, model surface recession compensator system for testing ablative materials. (JSR, EN) 684
Williamson, W. E. and Eller, T. J. Riccati transformation for gradient optimization techniques. (AIAA J, TN) 881

Wilson, James F. Response of simple spans to moving mass loads. (AIAA J, SYN) 4
Wilson, R. E. Aerodynamic interference of pitot tubes in a turbulent boundary layer at supersonic speed. (AIAA J, TN) 1420
Wingrove, Rodney C. Quasi-linearization technique for estimating aircraft states from flight data. (JA) 303
Winn, C. Byron (JSR; see Duong, Nguyen)
Winter, Robert Reply by author to M. J. Forrestal, M. J. Sagartz, and H. C. Walling. (AIAA J, TC) 1355
Wise, Frank D. Airborne recording and its future with the airlines. (JA) 232
Witmer, Emmett A. (JA; see Wu, Richard W.-H.)
——(AIAA J; see Wu, Richard W.-H.)
——(AIAA J, TN; see Leech, John W.)
——(AIAA J, TN; see Wu, Richard W.-H.)
Witte, K. J. (AIAA J; see Brederlow, G.)
Wolf, John P. Generalized hybrid stress finite-element models. (AIAA J, TN) 386
Wolko, H. S. (JSR, EN; see Campo, A.)
Woo, H. K., Kirmser, P. G., and Huang, C. L. Vibration of orthotropic circular plates with a concentric isotropic core. (AIAA J, TN) 1421
Wood, Lincoln J. and Bryson, Arthur E., Jr. Second-order optimality conditions for variable end time terminal control problems. (AIAA J) 1241
Wood, Stanley E. (AIAA J, TN; see Bryant, James T.)
Worden, John D. (JSR; see Herron, Bill G.)
Wright, A. J. (JH, EN; see McGregor, R. C.)
Wu, Jain-Ming (JA, EN; see Studwell, Victor E.)
Wu, Jin Injection of drag-reducing polymers into a turbulent boundary layer. (JH, EN) 129
——Near-field trajectory of turbulent jets discharged at various inclinations into a uniform crossflow. (AIAA J, TN) 1579
Wu, Peter and Libby, Paul A. Laminar boundary layer on a cone near a plane of symmetry. (AIAA J) 326
——**and Libby, Paul A.** Nonsimilar flows between the solution branches of the Falkner-skan equation. (AIAA J, TN) 112
Wu, Richard W.-H. and Witmer, Emmett A. Approximate analysis of containment/deflection ring responses to engine rotor fragment impact. (JA) 28
——**and Witmer, Emmett A.** Nonlinear transient responses of structures by the spatial finite-element method. (AIAA J) 1110
——**and Witmer, Emmett, A.** Stability of the De Vogelaere method for timewise numerical integration. (AIAA J, TN) 1432
Wu, S. M. (JSR; see Joglekar, A. M.)

Yan, Miin-Jeng and Dowell, E. H. High-damping measurements and a preliminary evaluation of an equation for constrained-layer damping. (AIAA J, TN) 388
Yang, H. T. Reply by author to A. H. Flax. (AIAA J, TC) 896
Yang, J. C. S. and Tsui, C. Y. Experimental and theoretical investigation of stress wave attenuation by inclusions. (AIAA J) 472
Yang, T. (AIAA J; see Tennant, J. S.)
Yang, T. Y. and Kim, H. W. Vibration and buckling of shells under initial stresses. (AIAA J) 1525
Yeh, Hsuan (AIAA J, TN; see Sherman, Arthur)
Yeh, L. T. (JSR, SYN; see Chung, Benjamin T. F.)
——(JSR, EN; see Chung, Benjamin T. F.)
——(JSR, ERR; see Chung, Benjamin T. F.)
Yeh, T. T. (AIAA J, TN; see Rosciszewski, J. J.)
Yoo, Chong-Yul and Porter, Robert W. Numerical analysis of the viscous, hypersonic, MHD blunt-body problem. (AIAA J, TN) 383
Yoo, Young Sik (AIAA J; see Haviland, John Kenneth)
York, Thomas M. (AIAA J, SYN; see Michels, Charles J. .)
Yoshikawa, Kenneth K. Variational solution to the radiative equation by the use of a step function II. Extension to nonlinear case by iteration method. (AIAA J) 19
Young, Dana Stiffness matrix for a beam with an axial force. (AIAA J, TN) 246
Young, James C. (JSR; see Norton, David J.)
Young, Maurice I. The influence of pitch and twist on blade vibrations. (JA, EN) 383
——The dynamics of blade pitch control. (JA, EN) 446
Young, Warren (AIAA J, TN; see Burkhard, Alan)
Yu, James C. (AIAA J, TC; see Dosanjh, Darshan S.)
Yu, Yi-Yuan Reply by author to A. Das. (JSR, TC) 288
Yuen, M. C. (AIAA J, SYN; see Nowak, Robert J.)
Yuska, J. A. (JA; see Lieblein, S.)

Zafran, Sidney, Beynon, John C., Kidd, Philip W., Shelton, Haywood, and Jackson, Frederick A. One-mlb colloid thruster system development. (JSR, EN) 531
Zappa, O. L. and Reinecke, W. G. An experimental investigation of base heating on typical Mars entry body shapes. (JSR, EN) 273
Zauderer, B. and Tate, E. Electrode and gasdynamic effects in a large nonequilibrium MHD generator. (AIAA J) 149
Zeierman, I. and Manheimer-Timnat, Y. Full control of solid propellant rockets by secondary injection. (JSR, SYN) 161
Zeitfuss, W., Jr. (JH; see Brooks, E. N., Jr.)
Zelazny, S. W., Morgenthaler, J. H., and Herendeen, D. L. Shear stress and turbulence intensity models for coflowing axisymmetric streams. (AIAA J) 1165
Zickler, Jeffrey L. (JSR, EN; see Bertin, John J.)
Zien, Tse-Fou Reply by author to G. R. Inger. (AIAA J, TC) 1357
Zinko, H. (AIAA J; see Brederlow, G.)
Zinn, B. T., Bell, W. A., Daniel B. R., and Smith, A. J., Jr. Experimental determination of three-dimensional liquid rocket nozzle admittances. (AIAA J) 267
——Nozzle damping in solid rocket instabilities. (AIAA J) 1492
Zipfel, Peter H. Perturbation methods in atmospheric flight mechanics. (AIAA J) 1247
Zwieback, E. L. Flyover noise testing of commercial jet airplanes. (JA) 538

AIAA JOURNAL—

Regularly $75 per year, member price just $7

Each month the AIAA Journal carries authoritative and lasting contributions on fundamental research in your specialty—new ideas, complete treatments, recent data, and fundamental reviews emphasizing basic research and exploratory developments in all aerospace fields.

JOURNAL OF SPACECRAFT AND ROCKETS—

Regularly $65 per year, for members just $6

The Journal of Spacecraft and Rockets carries authoritative articles on space technology—basic engineering systems studies and advances. *Monthly* issues contain timely engineering notes in propulsion, power systems, life systems, guidance, material, and all other disciplines in the space flight field—plus an average of 17 articles.

JOURNAL OF AIRCRAFT—

Nonmembers pay $55 yearly, your cost only $5

The Journal of Aircraft provides informative professional articles on current aeronautical engineering topics and special reviews on the technological, operational, and design problems of military and commercial aircraft and ground effect vehicles. This basic journal publishes up to a dozen full-length articles monthly plus engineering notes of current interest to aeronautical engineers.

JOURNAL OF HYDRONAUTICS—

$12 a year for nonmembers, $4 for you

The Journal of Hydronautics carries significant articles that contribute to the advancement of science and engineering concerning all types of marine craft, installations, and instrumentation. Launched in July, 1967, the *Journal of Hydronautics* deals with the hydromechanics of propulsion, the stability control of surface vessels and submersibles, and methods for providing mobility and habitation in water. *Published quarterly.*

New Reduced Rates for Members

Add to Your Source Library on *Aerospace Technology* with these Publications

Return this order blank with check or money order to: AIAA Subscription Department
1290 Avenue of the Americas
New York, New York 10019

Please enter my one-year subscription to:

☐ AIAA JOURNAL—$7/yr Member rate ☐ $75/yr Nonmember rate
☐ JOURNAL OF SPACECRAFT AND ROCKETS—$6/yr Member rate ☐ $65/yr Nonmember rate
☐ JOURNAL OF AIRCRAFT—$5/yr Member rate ☐ $55/yr Nonmember rate
☐ JOURNAL OF HYDRONAUTICS—$4/yr Member rate ☐ $12/yr Nonmember rate

Amount enclosed _____

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

TH'S ATMOSPHERE

ARTH'S ATMOSPHE

EARTH'S ATMOSPH

E EARTH'S ATMOSP

A new view and greatly expanded knowledge of the atmosphere has emerged in the space age through the use of sounding rockets and satellites. In ***The Earth's Atmosphere***, Volume XIII in the AIAA Reprint Series, William W. Vaughan and Leonard L. DeVries of the NASA Marshall Space Flight Center have gathered seven key articles with engineering/scientific significance and amassed an extensive bibliography. Order it and other volumes with the coupon below.

AIAA, Special Publications Dept. SRS, 1290 Avenue of the Americas, New York, N.Y. 10019

Please send me ___ sets of the twelve available volumes in the Selected Reprint Series at $30.00 per set. Please send me ___ individual volumes as indicated below at $2.50 for each volume. ☐ Send by regular mail. ☐ I have enclosed an additional $1.00 per copy for domestic airmail. ☐ I have enclosed an additional $2.00 per copy for foreign airmail. My check or money order for the total of $_____ is enclosed. I understand all sales are final.

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

☐ **The Earth's Atmosphere**/☐Solid Propellant Technology/☐Aerophysics of Air Pollution/☐Magneto Fluid Dynamics/☐Jet Transport Design/☐Ion Propulsion/☐Computational Fluid Dynamics/☐Aerodynamic Noise/☐Aerodynamic Flutter/☐Radiative Gas Dynamics/☐Ramjets/☐Astrodynamics and Celestial Mechanics

The numerical solution of complex fluid flow problems by computer remains both an art and a science. ***Computer Fluid Dynamics—Recent Advances*** *supplies the science. You supply the art. In the five years since the preceding Reprint Series volume on the subject, researchers have fashioned powerful new tools, including all-Mach-number techniques, procedures to assure numerical stability, three-dimensional methods and ways to accurately account for moving walls and surfaces. Francis H. Harlow of Los Alamos Scientific Laboratory has gathered eleven reprints and compiled an extensive bibliography covering the best late work, guided by the realization that engineers and scientists want real solutions to practical problems, not excessively idealized modeling.*

Order your copy of ***Computer Fluid Dynamics—Recent Advances****, Volume XV in the AIAA Reprint Series, by sending $3.00 to: The American Institute of Aeronautics and Astronautics, Special Publications Dept., 1290 Avenue of the Americas, New York, N.Y. 10019.*

New technology is being created all the time.

Keep up to date with the AIAA Selected Reprint Series.

An editor prominent in his field draws from the recent literature the most significant new developments and adds an extensive bibliography and timely overview. With more immediacy than a textbook, but more perspective than the latest proceedings, each volume serves as an introduction to the field as well as bringing professionals up to speed. Learning is a life-long process.

Published by the AIAA at low cost with the aid of the Sherman M. Fairchild Fund.

VOLUMES AND EDITORS

XVI	**HEAT PIPES**	C-L. Tien
XV	**COMPUTER FLUID DYNAMICS—RECENT ADVANCES**	F. H. Harlow
XIV	**TURBULENCE TRANSPORT MODELING**	F. H. Harlow
XIII	**THE EARTH'S ATMOSPHERE**	W. W. Vaughan and L. L. DeVries
XII	**ASTRODYNAMICS AND CELESTIAL MECHANICS**	V. G. Szebehely
XI	**AERODYNAMIC NOISE**	A. Goldburg
X	**SOLID PROPELLANT TECHNOLOGY**	F. A. Warren
IX	**AEROPHYSICS OF AIR POLLUTION**	J. A. Fay and D. P. Hoult
VIII	**JET TRANSPORT DESIGN**	J. M. Swihart
VII	**RADIATIVE GAS DYNAMICS**	R. J. Goulard
VI	**RAMJETS**	G. L. Dugger
V	**AERODYNAMIC FLUTTER**	I. E. Garrick
IV	**COMPUTATIONAL FLUID DYNAMICS**	C. K. Chu
III	**ION PROPULSION**	A. T. Forrester and G. Kuskevics
II	**MAGNETO FLUID DYNAMICS**	W. R. Sears
I	**ATMOSPHERE ENTRY**	A. J. Eggers Jr. (out of print)

Volumes I-XIII from this Series are $2.50 per copy. Volumes XIV-XVI are $3.00 per copy. All sales are final. Orders *must be accompanied by remittance* and should be addressed to the American Institute of Aeronautics and Astronautics, Special Publications Department, 1290 Avenue of the Americas, New York, N.Y. 10019.

Information for Contributors to Journals of the AIAA

General Requirements: Send all manuscripts, with covering letter, to the Managing Editor, AIAA Scientific Publications, 1290 Avenue of the Americas, New York, N. Y. 10019. Each manuscript must be accompanied by written assurance as to security clearance in the event the subject matter lies in a classified area or if the paper originates under government sponsorship. Full responsibility rests with the author. Signed assurance must be given that the manuscript or its equivalent *has not been submitted for publication elsewhere.* The AIAA has prior publication rights to any paper presented at its meetings, but preprints will be considered for publication only if the author requests it. All manuscripts must be as *brief and concise* as proper presentation of the ideas will allow.

Send 3 complete copies of each manuscript and 3 sets of figures. The manuscript must be in English, typed *double spaced* on one side of the page only, with wide margins to allow for editorial instructions. Footnotes, references, and figure captions also should be typed double spaced. Use standard-size ($8\frac{1}{2}$- × 11-in.) good-quality bond paper.

Synoptics: Alternatively, and at his option, an author may submit a Synoptic. Many subjects can be covered in a more useful and economical form for the majority of readers as a Synoptic, not exceeding 8 double-spaced typed pages (2 journal pages), with two major headings: *Theme*, which describes the purpose of the papers; and *Contents*, which is a concise but self-sufficient presentation of the key results in a form that readers can use without having to consult the full paper. Prior work and details of methodology generally may be omitted, but a few key references may be cited for important related work. Make a serious effort to write the Synoptic so that it is understandable to the general engineering community by replacing specialist jargon terms and acronyms with terms that the nonspecialist can understand. Where a device is the subject of the paper, a simple line diagram showing those elements being discussed in the Synoptic should be given. Coordinates should be shown on the diagram when pertinent, and symbols appearing in the tables and graphs of the Synoptic should be defined. Information should be given in tabular form rather than in prose when this simplifies the presentation and expedites comprehension. The relation of the author's contribution to the state-of-the-art should be indicated briefly.

If you have submitted a full paper, the Editors may request you to prepare a Synoptic for review instead. A Synoptic must still be accompanied by a full paper, preprint or company report for verification. If the Synoptic is published, the full text will be available to interested readers. Complete citation data will appear in a footnote on the first page of the Synoptic.

Full-Length Papers: In terms of standard-size *double-spaced* typed pages, the maximum length for full-length papers is 36 pages (including equations), where each normal-sized figure counts as one page. If a figure has several parts, each part counts as one page. Greater length usually will be unacceptable and may be the basis for return of the paper to the author for reduction prior to review.

Abstract: Each full-length paper must be accompanied by a 100- to 200-word abstract, written as a single paragraph. It should be a summary (not an introduction!) and complete in itself (no numerical references). The abstract should indicate the subjects dealt with in the paper and should state the objectives of the investigation. Newly observed facts and conclusions of the experiment or argument discussed in the paper must be stated in summary form. Readers should not have to read the paper to understand the abstract.

Introduction: The paper also must include an Introduction—a brief assessment of prior work by others and an explanation of how the paper contributes to the field.

Technical (or Engineering) Notes and Technical Comments: Short manuscripts, not exceeding one quarter the length stated for a full paper, may qualify for publication in one of these categories. *Notes* are intended for prompt disclosures of new, significant data or developments of limited scope. *Comments* should relate to papers previously published by AIAA. These categories are reviewed only by an editor and usually are published several months sooner than a full paper or Synoptic.

Titles and Authors' Names: The title should be brief and concise. The author's name should be typed on the line below the title, and it is preferable to use the full name. The company affiliation should follow on the next line, with the author's official title given in a footnote. This applies to all categories of papers.

Mathematics: Equations and symbols may be handwritten or typewritten; clarity is essential. If handwritten, be sure that a reader can distinguish between capital and lower case letters; the letter o and zero; ell, the number one, and prime; k and kappa; u and mu, v and nu, n and eta. Always use the *solidus* for fractions in the text and for simple fractions in displayed equations.

References: References are to be grouped at the end of the manuscript and are to be given as follows:

1) Journals: Walker, R. E., Stone, A. R., and Shandor, M., "Secondary Gas Injection in a Conical Rocket Nozzle," *AIAA Journal*, Vol. 1, No. 2, Feb. 1963, pp. 334–338.

2) Books: Turner, M. J., Martin, H. C., and Leible, R. C., "Further Development and Applications of Stiffness Method," *Matrix Methods of Structural Analysis*, 1st ed., Vol. 1, Macmillan, New York, 1964, pp. 203–206.

Segrè, E., ed., *Experimental Nuclear Physics*, 1st ed., Vol. 1, Wiley, New York, 1953, pp. 6–10.

3) Reports: Book, E. and Bratman, H., "Using Compilers to Build Compilers," SP-176, Aug. 1960, Systems Development Corp., Santa Monica, Calif.

4) Transactions/Proceedings: Soo, S. L., "Boundary Layer Motion of a Gas-Solid Suspension," *Proceedings of the Symposium on Interaction between Fluids and Particles*, Institute of Chemical Engineers, Vol. 1, 1962, pp. 50–63,

Always give inclusive page numbers for references to journal articles and a page or chapter number for books. Each reference must be cited in the text.

Illustrations: Line drawings must be clear and sharp. Use black ink on white paper or tracing cloth. Lettering should be large enough to be legible (at least $\frac{1}{16}$ in. high) after reduction. Plan figures for reduction to column width ($3\frac{1}{4}$ in.). Photographs should be glossy prints, not matte or semimatte. Each figure must have a caption; captions should be listed on a seperate sheet. Write your name and the figure number in the margin of each figure. Cite each figure in numerical order in the text.

Tables: Type a double rule at the top and bottom of each table and a single rule under the column headings. Table footnotes should be placed under the final double rule and should be indicated by letters, a, b, c, etc. Do not number table footnotes consecutively with text references. Each table must have a number and a caption. Cite each table in numerical order in the text.

Symbols and Units: Use standard symbols whenever possible, preferably those recommended by the American Standards Association. The metric or dual system of units (metric and English) should be used, wherever possible, in accordance with an endorsement by the AIAA Board of Directors. Although such use is not mandatory, authors are urged to comply.